



**FOREIGN  
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## **Central Eurasia**

***Military Affairs***

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# Central Eurasia Military Affairs

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## GENERAL ARMED FORCES ISSUES

### Grachev, Burlakov Complicity in Kholodov Death Hinted

954F0218A Moscow MOSKOVSKIY  
KOMSO MOLETS in Russian 19 Oct 94 p 1

[Article: "They Might Know the Murderers"]

[FBIS Translated Text]

#### Burlakov, Matvey Prokopyevich

Commander-in-chief of the Western Troop Grouping.

Many members of the Russian military prefer, as a result of the commercialization of the army that is growing right in front of people's eyes, to remain cautiously silent about Burlakov's activities. However, both in the German press and in the Russian there have appeared rather scandalous revelations that pertain to the sale by certain representatives of the highest command element of almost everything that might exist in the military property being controlled by them. In a report that was specially devoted to this topic, the Hamburg weekly DER SPIEGEL stated, in particular, that highly placed military men were involved in schemes pertaining to the subventions of the European Community and financial accounts, and into various swindling transactions. At such time they are very gratified to use 12 billion marks, as well as various benefits granted to them by the German government. "Directly or by way of illegal transactions, tremendous sums of currency from the property of the Western Group are going into private accounts in Zurich, Geneva, or New York," the weekly states. For this purpose, such methods are used as the organizing by officers of joint-stock companies through which it is possible to sell army property not without benefit for themselves; the sale along private channels of commodities to be received by the Army, which are freed of payment of customs or taxes; the use of the fact that the territory of units of the West Troop Grouping, from the legal point of view, are viewed as foreign territory, that is, properly speaking, a tax-free zone where it is very profitable for German firms to operate—naturally, not without the appropriate bonus for those who authorize that.

DER SPIEGEL in this regard prints the photograph of the first page of the commercial supplement of the "Mir Trade" firm with General Burlakov's handwritten resolution: "The proposal is good. It is necessary to maintain relations because everything is much cheaper" However, the magazine has found proof that the output of "Mir Trade" is more expensive than that of its competitors, and its shipments are usually late. In addition, they are small and of poor quality. DER SPIEGEL quotes the words of a subordinate of Burlakov's, who stated in this regard, "Maybe he cannot do better, or does not know better, or he has been bribed."

It has been said about Burlakov that "he has broken his troops down into molecules." But the entire higher command element has been riding around on Mercedes cars. Ordinary officers have sold everything that they could in

order to leave. Even the most "honest" ones have each sold several semiautomatic weapons, not to mention others that are filling the depots.

In late August 1994 Colonel-General Matvey Burlakov was unexpectedly appointed as Grachev's deputy by Yeltsin's personal decision. And it is felt that, in the MO [Ministry of Defense], he will become the most influential person. It is assumed that for the time being he will deal with questions of billeting the troops that are to be withdrawn.

#### Grachev, Pavel Sergeyevich

On 16 March 1992 Russia's own Ministry of Defense appeared. On 18 May 1992 General of the Army Grachev was officially appointed RF Minister of Defense.

As for the political views of the new Minister, it has not been possible to establish any firm views of his. For the most part, Grachev's statements can be summarized as the expression of firm resolve, by any means, to maintain the combat readiness of the army—whether it be the Soviet Army in the past, or the Russian Army of today—and to defend the country's interests in the military sphere. Incidentally, vicious tongues assert that Grachev understands these interests in his own way. According to testimony given by informed representatives of Russia's State Committee on Defense Questions, one of the first actions of the General of the Army in his new position as Minister was to visit the Moscow garrison's stockade, where he personally engaged in drill instruction with officers who were confined there... Some of those who know him from having worked with him assert that the Minister is "extremely power-hungry and unforgiving, and does not tolerate objections, much less criticism."

Today Pavel Grachev lets it be known that he is proceeding along the path of Yeltsin's policy—and he will continue to do so, whatever it may be. In any instance, Grachev's appointment as Minister of Defense has put many democratically-minded military men in a state of shock: in their opinion, one can forge about any serious reforms in the army leadership, the ideas of a civilian ministry of defense have been stillborn, and there can be absolutely no discussion of the purely military autonomy of the General Staff.

In September 1994 Grachev proposed to the Moscow leadership that they give his son, Lieutenant Grachev, a personal garage. "Apparently there was not enough space for the Mercedes cars that Burlakov's deputy, General Kushinov, had brought to Grachev senior." Slightly earlier the Minister transferred his apartment on Rublevka to his son. Pavel Grachev himself is now a neighbor of the President's.

#### Vicious Remark

Pavel Grachev made a statement about Dmitriy Kholodov's death. "We do not doubt that the cause of the explosion will be investigated soon," the Minister of Defense stated. "Society must know the truth about crimes." Together with his condolences, Grachev expressed concern that certain journalists, and especially Pavel Gusev, Editor in Chief of MOSKOVSKIY KOMSO MOLETS, had been directly linking the death of Dmitriy Kholodov with journalists' interest in instances of



corruption in the Western Troop Grouping. We completely deny such statements," he said. In response to a question asked by an EKHO MOSKVIY correspondent concerning the participation of Matvey Burlakov in instances of misappropriation in the Western Troop Grouping, Pavel Grachev replied that he is very well acquainted with that General and several commissions, including governmental ones, have confirmed his innocence.

MOSKOVSKIY KOMSOMOLETS received telephone calls from representatives of the Union of Soldier's Mothers. They reported that on 17 April 1994 they had been present at a recording of Vladimir Pozner's program "We," in which Pavel Grachev had taken part. Pozner asked Grachev who his enemy was. Grachev answered, "Enemy No. 1 is journalist Kholodov, and enemy No. 2 is Islamic fundamentalism."

That moment was not part of the program that was shown on television, but representatives of the Union of Soldier's Mothers are ready to certify both Pozner's question and Grachev's answer.

Yesterday the mass media repeatedly broadcast the statement by Grachev, who stated, "I am completely innocent and unimplicated. Burlakov and the General Staff are innocent, and Dmitriy Kholodov did not represent any danger either for myself personally or for the Ministry of Defense."

Grachev also stated that, in his opinion, journalist Kholodov himself was guilty of his own death, since he was blown up by explosives that he had brought back from the Caucasus, where he had previously been on a business trip.

That vicious remark will remain forever a fact in the biography of the RF Minister of Defense.

## MILITARY POLICY

### General Staff Considers National Defense Infrastructure

95UM0056A Moscow KRASNAYA ZVEZDA  
in Russian 28 Oct 94 p 2

[Article by Col Nikolay Khomchenko and Maj Igor Vizyuk: "Defense of the State Not a Departmental Affair"]

[FBIS Translated Text] As you know, military reform in Russia has demanded resolution of a whole group of specific problems at the state level. They include many that have never even been hinted at in public before, as they say. This article is about one of them.

The topic is development of the military infrastructure of the state. This problem in general has always existed, and has always made itself felt in one way or another. For instance, we know that one of the reasons for Russia's defeat in the Russian-Japanese War (1904-1905) was the extremely inadequate preparation of the theater of military actions in the Far East—the extremely weak development of lines of supply and communication, the lack of reserves of arms, ammunition and food, the shortage of engineer and other structures, and the poor communications.

And here is an example of a different order. During preparation of the counteroffensive at Stalingrad (1943), where plans were to use a large number of personnel and diverse combat equipment, a special railroad line, the Sviyazhek - Saratov - Ilovlya line was built in three months. This railroad (along the right bank of the Volga, nearly 1000 km long) made it possible to sharply increase military shipments from north to south, to speed up preparation of the operation and to expand its scope.

These two episodes from our history, perhaps not the brightest or most remembered, it seems to us speak for themselves. At the same time, we must also confirm that unfortunately many lessons are quickly forgotten. There are not all that many scientific studies on this problem. And the majority of them belong to the start of this century: N. Buynitskiy, "Engineer Defense of the State," 1907, 1909; G. Nevskiy, "Questions of Timely Engineer Preparation of the Country," 1920; N. Kokhanov, "Engineer Preparation of the State for Defense," 1928.

But nowadays, to judge from official documents, one might think that this problem had been resolved here. Meanwhile it is even discussed differently: in the RF Law "On Defense" (articles 5 and 16 it is operational preparation of the country's territory, and in the Basic Provisions of RF Military Doctrine it is preparation of the country for defense (including its territory).

However, let us not delve into terminological subtleties, but return to the obvious.

Even in peacetime the state creates installations that are intended for transfer to the Armed Forces in a threat period. And with the start of war, the majority of installations of the state are in fact used for military purposes and comprise its military infrastructure. So today it seems to us to be especially important that all this—operational preparation of the country's territory, preparation of the country's territory for defense—be implemented according to a unified general state plan (program).

Up until now, such a plan has in fact been lacking, and everything has been done according to the plans of individual ministries and departments, often not linked to one another. Here a large number of installations were created in departmental interests or the interests of a specific region, which did not always correspond to the interests of defense in terms of technical parameters, degree of protection, etc. Or, for example, nuclear power plants, reservoirs, and ammunition arsenals (warehouses) were built near large populated areas, and in the construction of motor roads, no plans were made for the creation of aviation sectors on them, or mass fueling areas, equipment repair areas, and so forth. As a result, existing installations (and ones under construction or planned for construction) often did not constitute a unified system in the defense of the state.

It turns out that even in such an important matter, a subjective factor decides—does the leadership (command) understand the importance of the given problem or not? But really, in questions of military development and preparation of the state for defense, can we rely solely on this? We need fundamental theoretical works by which both the organizers and the direct executors of this work

would be guided. Such a general state normative legal document, in our view, must be mandatory for all ministries and departments.

As a rule, the geopolitical situation of the country is one of the starting points in determining measures of operational preparation of the territory. No state in the world is capable of preparing its territory identically along its whole border and throughout its depth. There will be more installations in some places, fewer in others. This depends on the vitally important interests of the state and on existing potential threats to its security. And also on the economic development and the strategic role which is assigned to each region (area) with the start of the conflict (war), and on the geographic specifics—the topography, climate, etc. What is more, the selection and rates of construction of the military infrastructure are influenced by the plans for usage of the armed forces and by the mobilization plan. This is confirmed by historical experience. As we know, military actions have been conducted only in places where there was a specific infrastructure system on which the troops could rely.

Operational preparation of the territory, as is evident from the proposed plan, is an extremely complex and diverse matter. Much here is directly related to the economy of the country. So who must work at this important task? According to article 16 of the RF Law "On Defense," the General Staff develops the ideology of operational preparation of the territory in the form of the "Plan of Operational Preparation of the Country's Territory in the Interests of Defense," where the interests of the other ministries and departments are also affected. "Ensuring the creation of the infrastructure of the Armed Forces of the Russian Federation and other troops" is the job of the RF Government (article 6). Thus much will depend on how we are able to link all questions together on a general state scale. As we see it, it would be logical to assign questions of planning and ensuring the creation of the infrastructure in the interests of defense directly to the RF Government (or to some permanent coordinating organ in it). After all, coordination of activity of the ministries and departments lies within its jurisdiction. Here there would be an opportunity to best combine economic and military interests. Bearing in mind, of course, that when necessary sometimes it perhaps will have to forgo some economic interests if strategic interests require.

The military department (General Staff) naturally must participate most directly in developing this plan and defining its military aspect proper. On the basis of a coordinated plan, it would be possible to devise the plan for development of the infrastructure of the Armed Forces. Studies on this question have been prepared.

Naturally, any proposal in the field of development of the Armed Forces must be thoroughly weighed from the standpoint of economic possibilities. At the same time, one cannot but allow for the fact that the geopolitical situation in the world has fundamentally changed. Russia has been deprived of much within the context of its military infrastructure. After the collapse of the USSR, many of its installations remained outside the borders of the Russian Federation and became the property of other states. These installations are used there by the national armed forces,

are being refitted for other needs, or are gradually becoming unusable due to lack of need. Thus the restoration (creation) of a military infrastructure has become an urgent task for the Armed Forces of the Russian Federation. We would especially like to single out the following aspects. Accommodation of troops in new garrison points. Creation of an infrastructure of new groupings of troops and forces, with allowance for the interests and security of Russia. Creation of a national system of warning of missile attack within the borders of RF territory. Bringing military installations in accord with the planned new models of weapons and military equipment, and those already adopted. Measures to destroy offensive nuclear weapons and chemical weapons in accordance with signed and ratified treaties. Recycling of old weapons and equipment. Preservation of navigational and hydrographic equipment in the zones of responsibility of the Navy. All of this requires significant resources and time. At the same time, the economic situation developing in the country is such that not only is restoration (creation) of new ones difficult, at times there is no maintenance of existing installations in operable condition. This is unacceptable. In any case, the minimal necessary requirements of state security must be met.

The creation of a military infrastructure is of course not so urgent a matter as, say, payment of wages or provision of housing to service members. But ultimately it is the basis without which the use of the Armed Forces and the activity of service members will be impossible. Putting off the resolution of questions associated with its development for later, if a crisis situation arises, will lead to a reduction in the combat readiness of the Armed Forces and to the loss of strategic initiative. After all, we know that the failures of the initial period of the Great Patriotic War were largely due to our lag in operational preparation of the territory: the development of the airfield system lagged behind the development of aviation, and the combat readiness of Air Defense was diminished owing to the shortage of the latest means of detection of the air adversary and fire control, while industrial had not managed to supply the fortified areas with materials, equipment and weapons. These are only some of the bitter lessons taught us by the military history of our fatherland.

But how are things going for those whom we not long ago counted as potential adversaries?

In NATO countries, from the moment of its formation, the creation and improvement of the military infrastructure were carried out within the framework of the "Long-Term Plan of the NATO Joint Forces for Development of the Infrastructure." Europe was considered to be the main theater of possible actions. The "Long-Term Plan," which is the basis for development of construction programs of installations of the military infrastructure in the TVDs [theaters of military action] serves as the basic source for analysis of the requirements on the infrastructure, development of proposals regarding the long-term infrastructure and its goals, and the formation of requests for appropriations. And its realization ensures a logical set of levels of priority within the framework of NATO infrastructure programs (at present, the 45th phase of this program is being realized). The infrastructure to be created is divided into:



- the national infrastructure of the NATO member country (used on its own territory exclusively for its own armed forces, including those which have been transferred or are intended for transfer to NATO);
- bilateral infrastructure (applies only to two NATO member countries and is financed by mutual agreement between them);
- joint infrastructure (has vital importance for combat training of the NATO Joint Armed Forces and is financed jointly by the NATO member countries).

At present the NATO infrastructure is financed by 13 countries. These states divide expenditures in accordance with a formula based on their capacity to pay. It has been provided that countries on whose territory infrastructure installations are built must not bear unjustifiably high costs in comparison with those countries where few or none at all are built. Expenditures are determined in annually ratified programs. At present the U.S. contribution to the infrastructure programs is more than 20 percent, and it is followed by Great Britain and the FRG with 19 percent each.

Planning and financing of the infrastructure are carried out by special control organs: two permanent committees (infrastructure; financing and development of infrastructure) subordinate to the Committee for Military Planning of NATO, a department of the international staff-secretariat subordinate to the Assistant General Secretary of NATO, and also the corresponding structures in the commands in the TVDs.

Covering all the territory of the zone of responsibility of NATO, the corresponding installations now fully support combat and operational training, and if necessary deployment of armed forces and their conduct of military actions. For example the air-basing system is characterized by the assignment of one base airfield for each air squadron. In addition, two reserve airfields are assigned for each air wing, consisting of three air squadrons. Note that here not even an air regiment gets one airfield.

Let us assume that here too the presence of a long-term document (plan, program) for operational preparation of the country's territory would further the creation of a harmonious system of military installations and ultimately the preparation of state territory for defense. Naturally, to implement this document it is necessary to have special vertical and horizontal organs of control of the state (military department).

Until just recently, we had no control structure that dealt directly with this problem (it was only in the central apparatus of the USSR Defense Ministry, but it worked more at describing possible TVDs and analysis of the existing military infrastructure and the one to be created). There were not even any plans (programs). An attempt was made to create a plan for operational preparation of the country's territory at the end of the 80s, but its content was more reminiscent of statistical data, and did not allow determination of correspondence of the created military installations to the plans for use of the Armed Forces (armed services, combat arms (forces) and special troops),

or to find tendencies and mark out prospects for operational preparation of the territory. There was no such document in the main staffs of the Armed Services and the staffs of the combat arms (forces) and special troops and military districts (groups of forces), but questions of military infrastructure were to some degree considered in their development programs. However the creation of a military infrastructure was carried out by organs for construction and quartering of troops within the framework of the general plan of capital construction of the Ministry of Defense, on the basis of proposals and requests of military districts (groups of forces) and central directorates of the Defense Ministry. And only as the construction of installations was concluded did data about them flow to the organs of operational command and control.

As a result, the optimal proportions between the needs of the Armed Services and combat arms (forces), special troops and military districts (groups of forces) to create a military infrastructure were often disturbed. Requirements were set too high or too low depending who was able to "scrape up" so much money. As the task of construction of military installations was carried out within the assigned limits, often quality was forgotten in the pursuit of quantity. Sufficient installations were created, but they did not meet technical and operational requirements (are the explosions of ammunition warehouses in recent years a reminder of this?). The general index of quantity of particular installations gives the impression of their sufficiency, but in fact it turned out that this index was obtained through a surplus of installations in one area (region) and a shortage (absence) of them in another.

Priority in development of the infrastructure was always given to border military districts. As a result of the breakup of the USSR, Russia was left without a large percentage of first-class airfields, ranges, warehouses and other elements of the support system, including navigational, command and control, and signals installations.

Today, as already mentioned, the task of devising a "Plan of Preparation of the Country's Territory in the Interests of Defense" (article 16 of the RF Law "On Defense") has been assigned to the General Staff. It has created a structure to deal with this problem. But the absence of a normative legal basis seriously hinders the job. The planning for creation of installations of the military infrastructure continues to be implemented not in the organs of operational command and control, but in the organs of capital construction. Surely logic suggests that it would be more helpful for the operational staffs to determine their needs for military infrastructure, and for the organs of capital construction to give financial and economic justification. Only then will those installations that are truly needed be created. But as we said above, the corresponding structure exists only in the General Staff. In the majority of lower staffs, it is not special officials who deal with this question, but persons assigned the job as an additional load. Should one then be surprised that resolution of questions of operational preparation of the territory in the provinces is not always efficient or of high quality? So if we want the troops to have a strong infrastructure and territory prepared for any "surprises," we must create the corresponding structures (add officials to the table or

organization and equipment) in all staffs, including the staffs of operational formations. The problem of operational preparation of the country's territory (area, region) overall is not a new one. At the same time, for us here there is not a little novelty, since it has not been treated seriously for some time. Now it is time to get to work, for operational preparation of the territory, like it or not, is an element of military potential of the state. Only, how long will it take our politicians to understand this?

## NAVAL FORCES

### Ovcharenko Arguments for SLBM's Countered

95WC0009A Moscow NEZAVISIMAYA GAZETA  
in Russian 22 Oct 94 p 4

[Article by Aleksey Prokudin, candidate of technical sciences and leading researcher at the Central Scientific Research Institute of the Ministry of Defense of the Russian Federation: "What the Admiral Failed To Mention"]

[FBIS Translated Text] Prior to the publication of the article "Prospects of the Naval Nuclear Forces of Russia" by Rear Admiral A. Ovcharenko, the discussion in the press of the status and development prospects of the country's strategic nuclear forces and their components was accomplished by independent experts and was impartial in nature despite the differences in their assessments. Top scientists and specialists stated their views on the development of strategic arms, the structure of the strategic nuclear forces [SNF], and related matters: Ye.B. Volkov, A.G. Arbatov, V.S. Belous, G.K. Khromov, V.Z. Dvorkin, A.V. Politsin, and many others. It is hardly possible to categorize all of them as adherents of only the Strategic Missile Forces (RVSN).

Until the present time, the chiefs of staffs and directorates of the branches of service responsible for the development of the arms of their branch as well as the main designers and developers of these arms have refrained from such articles, understanding that their arguments cannot be perceived as objective. Therefore, the participation of the deputy chief of the Operational Directorate of the Main Staff of the Navy with direct responsibility for the development and use of NSNF [naval strategic nuclear forces] is a kind of precedent.

In assessing the state of the NSNF, the basic thesis of the admiral is that in our country little attention is being paid to the development of NSNF (no missile-armed nuclear submarines have been built since 1990 and the Navy is allocating less than half of the necessary funding), whereas in the United States, just as in the England and France, the improvement of NSNF is a priority direction in the development of strategic arms in the long term (this theme is repeated three times in the article). There is no mention of a primary objective factor that has predetermined the existing asymmetry in the structures of the strategic offensive forces of the United States and the strategic nuclear forces of Russia—the different geostrategic position of the two countries. Whereas for the United States, with a large number of naval bases throughout the world and on the continent, it was expedient to develop a naval component

of the strategic offensive forces, this course was not rational for our country, with ice-free ports for the stationing of missile-armed submarines only in the region of Murmansk and in the Far East.

The author is overestimating the role of NSNF in guaranteeing the country's defense capability. In 1970, the Strategic Missile Forces had 1,300 ICBM's (there were 300 submarine-launched ballistic missiles) and in 1975 there were 1,527 and 784, respectively. It may be said without exaggeration that precisely the grouping of ICBM's deployed in hardened launch facilities had the greatest influence on strategic stability.

At the same time, the United States always sought above all to limit our ground missile complexes. Thus, the restrictive parameters of the START-I Treaty affect 90 percent of strategic missile forces, 45 percent of NSNF, and 30 percent of air strategic nuclear forces. This indicates a lot.

In the opinion of the author, the optimum version of the realization of the START-I Treaty was the version that considered above all the possibility of the Navy to maintain the necessary level of combat readiness of the NSNF with minimal expenditures. Under this version, the NSNF could actually have had 27 missile-armed submarines having 456 launchers with 2,320 warheads.

Without in the least doubting the competence of the deputy chief of the Operational Directorate of the Main Staff of the Navy, we must pay attention to the following detail. The service lives of the first submarines of the "Kalmar" class first deployed in 1976 will come to an end in the late 1990's. Taking this into account, because of physical obsolescence and wear, by 2000 no more than 23 submarines capable of carrying about 400 missiles with 1,900 warheads will remain in the effective strength of the NSNF. For this reason, a reduction of NSNF under the START-2 Treaty did not require fundamental changes in the version corresponding to the START-I Treaty. It was precisely in this connection that there was the most discussion of the Strategic Missile Forces, which were mostly affected by reductions (rather than on account of less attention to NSNF).

The main theme on the basis of which it is concluded that it is necessary to undertake the priority development of NSNF in the country's strategic forces is the assertion that missile-armed submarines have a greater survivability in comparison with mobile complexes of the Strategic Missile Forces. Evidence of this is the fact that "the possible regions of the combat patrolling of missile-armed submarines cover tens of millions of square kilometers.... Just an hour or two after a submarine submerges, the area of its possible location may be tens of thousands of square kilometers. But it is mentioned at the beginning of the article that in 1970 the United States resolved a "national problem" and created a global system for the hydroacoustic detection of submarines that was "rather effective in combatting the nuclear and diesel submarines of the Navy of the USSR." It follows from other sources that "recently the United States and its allies have improved the means of observation and the tactics for



combatting submarines. Acoustic antennas many kilometers long placed on the ocean bottom make it possible to continuously monitor three-fourths of the operationally important regions of the Atlantic and Pacific oceans in which Russian submarines may operate. American multipurpose attack submarines are constantly tracking and working out tactics to combat Russian missile-armed submarines in the immediate vicinity of their bases." In stressing the high survivability of our submarines at sea, the author of the article completely fails to mention the role that the indicated system plays in combatting them and speaks only of the enormous expanses of the seas and oceans. One gets the impression that the author of the article is familiar with the hydroacoustic system for the detection of submarines only as it was in the 1970's.

A truly unbiased comparative analysis of the undetectability characteristics of the most advanced systems—the Russian "Typhoon" system and the American "Trident" system—shows that whereas the combat characteristics of missiles can still be considered comparable, the submarines of the "Typhoon" system are significantly inferior to the SSBN's of the "Ohio" class (by a factor of 20 to 30 in noisiness, by a factor of 25 in the effectiveness of hydroacoustic armament, by a factor of 16 in the reliability and stability of tactical control, and by a factor of 1.5 to 2 for the share of SSBN's on combat patrol.

Since the article makes an assertion (without foundation) about the simplicity of detecting mobile missile systems and accordingly puts in doubt the high survivability of groupings of Strategic Missile Forces and since there may be people who believe this, it is necessary to take a somewhat closer look at the question of guaranteeing the survivability of mobile launchers. Ignorance of the complete picture of space reconnaissance and of the measures to counteract it may lead to false conclusions.

The means of space reconnaissance have truly reached a high level of perfection and under favorable conditions may have a high probability of detecting an uncamouflaged launcher of the mobile system of the Strategic Missile Forces. And being detected immediately before the strike, it may be destroyed. But one must not reduce the question of the destruction of one or several launchers to the destruction of an entire grouping numbering hundreds of launchers dispersed over the territory of the country, because the matter is actually much more complex than that.

A launcher can be detected reliably only through the means of optical-electronic reconnaissance taking a picture of an area of just a few square kilometers obtained during clear sunny weather. The means of survey reconnaissance that scan a strip approximately 200 km wide have a worse resolution and do not have a high reliability of detection of launchers. Only a few percent of the launchers may be reconnoitered and they are targeted for a strike. To destroy the rest of the launchers, the strike must be made against the territory of the presumed regions of their location, for which the required number of warheads of the attacking side will significantly exceed the available number.

It is appropriate to remember that the possibility of ensuring a high degree of survivability of the grouping of

mobile ground missile systems was confirmed by the results of the use of the operational-tactical "Scud" missiles in combat operations between the multinational forces and the Armed Forces of Iraq at the beginning of 1991. Despite the favorable natural and climatic conditions and the use of U.S. space reconnaissance and major aviation forces to resolve this task, the detection of mobile missile systems was linked with enormous difficulties.

Deployed in the heart of the country and equipped with the necessary means of protection against aircraft and highly accurate munitions, the "Topol" missile systems are also highly survivable in a conventional war (just as are the silo launchers of the Strategic Missile Forces). Their status in combat operations can be monitored and if necessary other forces and means can be brought in to protect them during combat operations. But what about submarines? While on patrol underwater in the vast expanses of the world oceans, they are in the zone of action of antisubmarine information systems and the other side will know their location. When they are in coastal waters, they need the protection of surface ships. But the surface ships and the submarines under their cover may be destroyed in a conventional war. Apparently the author understands this, for he states: "We must declare to the entire world that any action (combat or using special means) against our strategic systems is inadmissible and that a threat to our national interests will arise even in the event of the threatened loss of just one of the missile-armed vessels."

Well, they declared it and the submarines are being sunk. Who will be deterred by these declarations? For no reasonable person will give the order for a retaliatory nuclear strike that would put the country on the verge of total destruction. The only way out is to have strategic forces that are not very vulnerable in a conventional war, which the Strategic Missile Forces come closer to being than other components of the strategic nuclear forces.

In an objective comparison of the NSNF and Strategic Missile Forces, one cannot fail to see the following: without diminishing the possibility of a naval component of the strategic nuclear forces, one must recognize that only the Strategic Missile Forces are capable of effectively resolving tasks in any kind of nuclear missile strike.

A preemptive strike, solitary or limited, requires high accuracy characteristics from the weapon, a launch on warning requires high combat readiness, and a launch under attack requires survivability. The NSNF may be effective in a launch under attack only if the survivability of submarines and the stability of their command and control are guaranteed. Only the Missile Forces can carry out a launch on warning. Despite the controversial nature of the question of carrying out a launch on warning, it was always considered a powerful deterrent factor, because in the event of its successful execution almost all ICBM's on alert status may be launched. Primarily the other side takes this into account. One can draw the quite unbiased conclusion that the Missile Forces are and for the foreseeable future will remain the most effective component of the strategic nuclear forces and the most powerful deterrent force in any combat situation. For this reason, the practical decisions for their further development through their equipment with improved "Topol" missile systems is the

only correct and least expensive way to guarantee the strategic defense of the country, which is very important for present-day Russia.

As for the contradiction that supposedly exists, in the opinion of the author, between the political decisions made on changing the structure of the strategic nuclear forces (START-2 Treaty) and the resolution of problems in the grouping of mobile "Topol" missile systems, one must also see the compromises made by delegations in negotiations. There is no doubt that the obligations will be carried out with respect to the NSNF and the Strategic Missile

Forces. But under the extremely difficult economic conditions, the country cannot afford equal development of all components of the strategic nuclear forces. Preference was given to the Missile Forces for the reasons given above.

One has to agree with the author that a national program must be elaborated for the development of strategic nuclear forces that will lay the foundation for the building of strategic nuclear forces in the 21st century. Certainly it must be based on the basic positions of the military doctrine of the Russian Federation.

## POLICY ISSUES

### Missile Silo Destruction Protocol Signed, Colonel Serdyuk Comments

95UM0044A Kiev NARODNA ARMIYA  
in Ukrainian 15 Oct 94 p 1

[Article by NARODNA ARMIYA special correspondent Major Volodymyr Knysh: "How Can the Nuclear Missile Silos Be Destroyed More Properly?"]

[FBIS Translated Text] *A protocol has been signed between the Ministry of Defense [MO] of Ukraine and the Ministry of Foreign Affairs of the FRG on the destruction of missile launch silos (ShPU). The Ukrainians were represented by the Chief of the Center for Administrative Control of Strategic Nuclear Forces of the MO of Ukraine, Colonel Oleksandr Serdyuk, and the Germans by Ambassador Extraordinary and Plenipotentiary of the FRG to Ukraine Dr. Alexander Arno.*

The framework Treaty on Cooperation in Nuclear Disarmament that was signed on the occasion of the visit of the Federal Chancellor of the FRG to Kiev on 10 June 1993 stands behind the conclusion of the Protocol. The signing of the Protocol is testimony to the fact that both nations want to develop and try out technology for the destruction of ShPUs jointly, and in deed rather than in word. A trial stage in this important cause is being launched thereby. The tested technology, in the opinion of both sides, should make it possible to destroy ShPUs in accordance with the provisions of the START-I Treaty without danger to people or the environment, even close to populated areas. The cost of personnel and equipment, even that provided by the Ukrainians, is being borne by Germany to a considerable extent. The technology should be employed in the planned destruction of long-range ShPUs in the spring of 1995, provided that the testing is completed successfully. The Germans consider this project to be the beginning of collaboration in nuclear disarmament, and a concrete contribution to the cause of supporting Ukraine in the fulfillment of its disarmament obligations.

What will be the first steps of the parties in the fulfillment of this program? What funds are planned to be allocated for it?

FRG Ambassador Dr. Alexander Arno, in answering the questions of a correspondent from NARODNA ARMIYA, emphasized the importance of the joint performance of this crucial work. He said that monetary support for the entire program for the destruction of the ShPUs can be discussed after the completion of the preparatory stage.

The first thing that will be done is the delivery of the necessary equipment. A specialist from our military agency should be visiting Germany within the week in order to meet with officials, in the words of the ambassador, after which the equipment should begin coming to Ukraine. The greater portion of the projected program should be fulfilled this year.

The Chief of the Center for Administrative Control of Strategic Nuclear Forces of the MO of Ukraine, Colonel Oleksandr Serdyuk, reported that the special equipment

should be arriving in a month. It is intended for the immediate destruction of the ShPU structural elements. The discussion, said Colonel O. Serdyuk, concerns those structures that are located close to populated areas. The so-called "sparing technology," that is, not blasting but hydroabrasive cutting, could be a more acceptable variation for the destruction of the missile launch silos.

The two technologies—the domestic technology of blasting, and the German hydroabrasive cutting—will be compared. The Germans have agreed to pay for the work that will be conducted at other ShPUs as well, but only after the technology has been tried out and accepted. This could be considered an unusual accomplishment, since our side had already been forced to pay for the direct performance of the destructive measures.

Colonel Oleksandr Serdyuk expressed the hope that social problems, which are impossible to separate out and leave outside the agreement, as well as technical ones will be resolved in the future.

The question of just where the destruction of the first missile launch silos will begin remains an open one. This will become known, in the words of Colonel Serdyuk, after the government makes the appropriate decision on the time frames, quantity and types for destruction. The corresponding schedule will be submitted within three months after that.

It must be emphasized once again, however, that the discussion concerns the development of technologies for the destruction of ShPUs close to populated areas, where it is impossible to perform blasting operations. Our technology does not provide for the execution of large explosions, but rather only a series of directed, sequential ones that break up the structural elements of the launch silos. The joint project is intended precisely to resolve the rest—with the assistance of which technology the destruction of nuclear facilities on our territory is more proper. And on our territory alone? Perhaps the Germans are thinking ahead to a time when the problem will be raised at the nuclear facilities of other nations as well.

### Lopata, Oliynyk, Samoylenko Speak at Kiev Command-Control Conference

95UM0018B Kiev NARODNA ARMIYA  
in Ukrainian 14 Sep 94 p 2

[News items from "Inf. NA": "Command, Control and Communications—A Scientific Approach"]

[FBIS Translated Text] One qualitative feature of the building of the Armed Forces of Ukraine, among other components, is the level of the sophistication of their information and command support. They are equipped for this purpose, as indicated in the Military Doctrine of Ukraine, with uniform systems of automated command, control and communications. A practical-science conference that began on September 13 in Kiev is indeed devoted to the prospects for their development, the devising of uniform views regarding the utilization of those systems and the resolution of the principal problems in the realization of scientific and technical policy in the realm of creating a unified, automated command and control



system and a unified, automated system of communications, as well as to the prospects and problems for the technical refitting of the troops with communications.

The conference was organized by the Main Directorate for Communications and ASU [Automated Control Systems] of the General Staff of the Armed Forces of Ukraine based on the Kiev Military Institute for Command, Control and Communications, which occupies a leading place in the elaboration of scientific issues pertaining to the adoption of contemporary systems of command, control and communications. The conference participants—including representatives of the Supreme Soviet, the Cabinet of Ministers and the National Academy of Sciences of Ukraine, generals and officers from the central apparatus of the Ministry of Defense of Ukraine, the chiefs of the communications troops from the branches of the Armed Forces, the arms of service, the military districts, other power ministries and agencies and military scientists, as well as representatives of the Ministry of Communications—over three days will, aside from conducting plenary sessions, work in sections and visit exhibitions of working models of communications and ASU hardware and the products of the military-industrial complex of Ukraine in this field.

Chief of Staff of the General Staff of the Armed Forces of Ukraine and First Deputy Minister of Defense of Ukraine Colonel-General A. Lopata, Armed Forces of Ukraine weaponry chief Colonel-General I. Oliynyk, Armed Forces of Ukraine communication chief Lieutenant-General V. Samoylenko and his deputy, Colonel V. Ishchuk, spoke to the participants on the first day of the conference.

#### **Proceedings of Ukraine-NATO Command & Control Conference Reported**

95UM0018B Kiev NARODNA ARMIYA  
in Ukrainian 16 Sep 94 pp 1-2

[Article by Colonel Viktor Shvirov under the rubric "Building the Armed Forces: Experience, Problems, Prospects": "A National Approach Is Ultimately Needed—Notes from the Scientific-Practical Conference on Problems in the Creation of Unified Systems of Command, Control and Communications"]

[FBIS Translated Text] *A scientific-practical conference that discussed the prospects for the creation of unified, automated systems of command, control and communications for the Armed Forces of Ukraine has completed its work at the Kiev Military Institute of Command, Control and Communications.*

*Chief of Staff of the General Staff of the Armed Forces of Ukraine and First Deputy Minister of Defense of Ukraine Colonel-General Anatoliy Lopata, Deputy Minister of Defense for Weaponry and Chief of Weaponry for the Armed Forces of Ukraine Colonel-General Ivan Oliynyk, Armed Forces of Ukraine Communications Chief Lieutenant-General Valentyn Samoylenko, generals and officers, representatives of other ministries and agencies, the VPK [military-industrial complex] and scientists all spoke during the course of the discussions.*

*Vice Prime Minister and Acting Minister of Defense of Ukraine Valeriy Shmarov and the Supreme Commander-in-Chief of the Combined Forces of NATO in Europe, General George A. Joulwan, making an official visit to Ukraine at the time, visited an exhibition of communications and ASU [automated control system] hardware during the conference.*

We would emphasize that equipping the Armed Forces with unified, automated systems of command, control and communications is one of the tasks posed by the Military Doctrine of Ukraine. One cannot say in this regard that this crucial work is starting from square one. Some fragments of the systems of command and control, after all, are present in the military forces that remained in Ukraine from the former USSR. The work to create our own command, control and communications is based on them.

But to utilize them, so to speak, in their unadulterated form would be a great mistake, since the tasks of the armed forces of a now sovereign state with its own Military Doctrine and an exclusively defensive, non-allied nature, and which considers none of its neighbors to be a likely adversary, have been radically altered.

Those unified systems, on the other hand, had not been completely formed in the former Union. They were, so to speak, of their own particular, branch or arm of the service nature.

It was worked out the best in the Strategic Rocket Forces [RVSP] (and fragments of those remained in Ukraine as well), and slightly worse in the PPO [air defense] and Air Forces. A system of command, control and communications was lacking entirely for field PPO.

Some attempts were made to unite all of these diverse systems into a unified one, on the scale of all of the armed forces and the nation, on the eve of the collapse of the USSR. And it proved to be much more difficult and expensive a task than was realized from the beginning.

Our young state already has negative experience in a neglectful attitude toward this work as well. Recall what an uproar there was surrounding the automatic merging of the then PPO Troops and the Air Forces into a unified branch of the Armed Forces. And it was revealed that their systems of command, control and communications were not even crudely linked, which would have led inevitably to the loss of command and control of this artificially created "offspring." And it is very good that sober heads were found who halted the overly hasty process of unification. We will certainly have that unified branch of the Armed Forces in the future. But the work on its creation must be pursued in gradual and considered fashion.

All of the above emphasizes the exceptional importance of creating unified, automated systems of command, control and communications not only for the cause of building the Armed Forces, but also to ensure the security of the state. And that is still not all. Such systems and command and control elements of the Armed Forces, once created, will be organically intertwined with the system of state administration. That is why the resolution of this problem takes on national significance. But it turns out that the state cannot yet set about this task. Economic difficulties have led to



the fact that budgetary appropriations are in short supply, while the funds that are allocated are sufficient only to support the vital activity of the Armed Forces. The scientific-practical conference also had as its aim finding possible ways out of the conditions that reign today.

Proposals of that sort were indeed sounded during the speeches at the plenary sessions and the discussions in the sections. But a detailed analysis of what has been done came first. The Chief of the General Staff of the Armed Forces of Ukraine, Colonel-General Anatoliy Lopata, Chief of Weaponry for the Armed Forces of Ukraine Colonel-General Ivan Oliynyk, Armed Forces of Ukraine Communications Chief Lieutenant-General Valentyn Samoylenko, representatives of the VPK and scientists emphasized that Ukraine has its own capabilities for the creation of unified, automated systems, on which some of them were indeed working directly. What do we have in mind here?

*First of all, there is a potentially mighty scientific-production base, which given suitable financing could operate quite successfully. There are also work and projects in progress, but that is, we would emphasize, on the part of the military. The Main Directorate for Communications and ASU of the General Staff of the Armed Forces of Ukraine, for example, has developed, and the Cabinet of Ministers a year ago approved, the conceptual framework of a program for the creation of a unified, automated communications system. Some practical steps have also been taken with regard to creating and utilizing command and control points and means of communication. This pertains, incidentally, to the very reliable and modern system of command and control for the RVSP forces that was disbanded in connection with the withdrawal of nuclear weapons from Ukraine. It should be emphasized in this regard that the Ministry of Defense made every effort to preserve that resource for Ukraine.*

The question involuntarily arises: what contribution has our state made to this important cause? An interagency coordinating council on communications has been created. As was emphasized at the conference, however, none of the ministries and agencies charged by the council except the Ministry of Defense has yet fulfilled its tasks. There will be nothing for some of the officials to report at the next session, which will take place soon, after all.

But that is still not all. The draft Law of Ukraine on Communications, which, strictly speaking, provides for the creation of a unified information expanse across the territory of Ukraine and provides the basis for the work of all institutions, not just military ones, remains under the consideration of the Supreme Soviet to this day.

When will matters get moving, when will the numerous problems that they raised at the conference be solved? We asked that question of People's Deputy of Ukraine and member of the Commission on Issues of Defense and State Security of the Supreme Soviet Viktor Shestakov.

"I carry from this conference the idea that a great deal has already been done, in both the theoretical-science and the practical aspects, pertaining to the accomplishment of these important tasks. I want to reassure you that I will

report everything that I saw and heard there to my colleagues without fail. We really need to be acting now at the state level, after all."

The words of the deputy are encouraging. But assistance is needed from the legislative and executive branches in more than the creation of laws and state programs and the devising of estimates alone—and which, incidentally, they have not been able to finish completely over the three years of existence of the independent state. Another problem is the fact that the VPK is slowly decaying, is not being supplied with orders, and owes everything to everybody. Proposals to shut down those scientific-production associations that constitute the reputation and pride of the nation for a miserly sum of currency are moreover being sounded "from afar," as they say. Can this be permitted?

The answer is an unequivocal no, the more so as our science and VPK have certain experience in the creation of the means of command, control and communications. I met during the conference with the director of the Soyuz Scientific-Research and Planning Institute (NDPI) and general designer of the unified, automated communications system, Anatoliy Markelov. The scientists of the NDPI have a great deal of experience in creating systems for regional communications in Ukraine, including cellular and digital ones. And they have been in debt for a long time as well. If the situation is not rectified, Anatoliy Mykhaylovych indicated, an irreversible process of the destruction of the sector will begin...

Problems exist, with regard to purely military matters, not only in the development of new prototypes, but also in the operation, repair and upgrading of existing hardware for command, control and communications—of which, by the way, many types and modifications exist. Many examples were cited at the conference testifying to the fact that negative consequences could ensue in the near future owing to the lack of support, primarily funding. Quite a large percentage of the hardware that is currently in service with the communications troops, moreover, is produced in other republics of the former Union. This leads to dependence on a producer who does not always meet one halfway, the more so when the customer is lacking money. The question of creating our own models is thus extremely acute. Ukraine naturally cannot do everything alone, and that forces it to go in for cooperation and the procurement of licenses. But in that case, if assembly using foreign constituent items will take place in Ukraine, it provides hope to our industry. That is what they do, by the way, in many countries around the world.

The conference naturally pointed out that it is not just the military who should be occupied with these matters, although they are always able to assist in substantiating this or that decision. It is thus emphasized once again that the state itself, and no one else, must ultimately face these problems. It was no accident that a proposal was made by Colonel-General Anatoliy Lopata pertaining to the creation of a special committee under the government that would, enlisting only professional specialists, be occupied with the development of a system of command and control for the state (and the command and control of the Armed Forces is an organic part of that). The higher leaders of the state able to make both political and military decisions

would moreover be part of that structure. The leadership of the nation and the government, in other words, must be convinced of the necessity of this work.

Ideas were also expressed at the conference regarding the reorganization of the Ministry of Machine Building, VPK and Conversion, since it encompasses enterprises that are too diverse in type, which hinders its activity, and regarding the improvement of the system of settlements with the VPK under conditions of increasing inflation.

These and other proposals were taken into account in the resolutions of the scientific-practical conference. And I will just permit myself to illustrate their content with this example.

During the visit to the exhibition of specimens of communications hardware, the supreme commander-in-chief of the Combined Forces of NATO in Europe, four-star general George Joulwan, displayed a particular interest in a space communications set that is mounted on a vehicle. That is even though a similar piece of communications gear was located... in the suitcase of the officer accompanying the general. Commenting on this episode, one prominent scientist pointed out that if the state had any money, he would not be averse to making something similar...

## AIR, AIR DEFENSE FORCES

### Concern for Ukraine's Ability To Keep Highly Skilled Pilots Aired

95UM0023A Kiev NARODNA ARMIYA  
in Ukrainian 11 Oct 94 p 2

[Article by Lieutenant-Colonel Oleksandr Teplyak, senior navigator of an aviation regiment and master of sport in higher aerobatics on jet aircraft, under the rubric "Question Requiring an Answer": "Will Ukraine Have a Higher Aerobatics Group?"]

[FBIS Translated Text] The air forces of virtually all countries have flying demonstration groups today. Their purpose is to show spectators the meticulous individual mastery of the pilots, multiplied by the ability to perform elements of aerial acrobatics as part of a team. Such groups as the Blue Angels, the Snowbirds, the Burevestniki and the Patrouille de France are known around the world. The inhabitants of Kiev and its guests were able to see one of the best known of the aerobatic flying groups—the Red Arrows—in 1990. The flights by that team captured the spectators, while professionals felt a tinge of envy.

Are the pilots of our line regiments and flight instructors at the aviation schools really able to perform those types of flights? The role of the flying team demonstrating the lofty flight qualities of the new models of aviation hardware, primarily to foreign delegations in the USSR, used to be performed by the air garrison at Kubinka. The technique for training the flight personnel and the experience and traditions of that Moscow-area garrison were the basis for the creation of three flight teams. These were the Strizhi (flying MiG-29s), the Russian Knights (flying Su-27s) and the Hussars (flying in Su-25 aircraft). A team of skilled pilots also began to be formed at the end of the 1980s at the Vyazemskiy base of the NATs using L-39 aircraft, and it is

now considered to be one of the best trained with regard to the complexity of the elements performed. It is called Rus today.

The government of Russia, despite the unstable and unbalanced economy, the difficulties surrounding fuel and other objective problems, intends to find funds and opportunities to ensure the existence and operation of those groups. These efforts are already bearing fruit. All four groups have taken part repeatedly in air shows, drawing tens of thousands of spectators to their appearances. That is perhaps the best propaganda of all for the aviation traditions, and the cultivation in fliers of a love of aviation and a desire to become a pilot or aviation specialist. The main thing is to awaken that desire with a worthy example.

Flight demonstration teams are a source of national pride around the world for the countries they represent. The participants in air shows are no less well known than popular artists or soccer stars. That popularity is fitting payment for the difficult work of the pilots. Going outside the borders of their own countries, they become the best emissaries and representatives of the "popular diplomacy" that is drawing much more attention today, and which has a real influence on the progression of political processes. As Bruce Latton, the chief of the central flight school of the Royal Air Force of Great Britain, has stated, "the pilots have done more over a few days to strengthen friendship and trust, mutual understanding and cooperation than the politicians of our two countries have done over the last decade, and we should continue on in the same spirit." Is there not information to consider in the words of the British general?

The creation of Ukrainian aerobatic groups is naturally not a simple matter, and it is made much more complicated by the economic difficulties. But reserves could be found nonetheless for the small opportunities that we have today, so as to form up a group from the nine L-39 aircraft based in one of the aviation training regiments. The L-39 Albacross aircraft would permit the performance of almost all advanced solo aerobatic maneuvers, and most of the group maneuvers as part of a team as well; a smoke generator is installed on the aircraft, and fuel for the additional fuel line comes from wing tanks to the jet nozzle. A smoke trail is created in flight thereby.

The fact that the operation of this aircraft is much cheaper than fourth-generation aircraft is also important. The flying of a MiG-29 or Su-27 that is done at very low altitudes with maximum G-forces and minimum radii is an excellent spectacle, of course, which entertains the spectators. But it would be economically more advantageous at first to create a flying team using those trainer aircraft. It should be pointed out that 75 percent of all flying teams in the world fly using them. The Italian team uses MBB-330 aircraft, the Swedish SAAB-105s, and the Canadians use Tutors that were created as long ago as the 1960s, and which are inferior in flight qualities to the L-39 aircraft that are in service with the air training regiments of the Ukrainian Air Forces.

The Canadian Snowbirds, which were and are considered to be one of the spectacular groups, are able to perform aerobatic maneuvers at intervals and spacings between

aircraft that are reduced to the absolute minimum. A great deal, of course, depends on the design features of the aircraft, but the training of the pilot remains at the forefront today as well. It should be pointed out that if the decision is made to create a group of aerobatic fliers from Ukraine that is no worse than the leading teams from around the world, then we must reject the current system of pilot training; otherwise it will not be possible to avoid great problems in the performance of the flights. A system under which a pilot not so much prepares for a flight as prepares the documentation for it, works if we are talking about simple types of pilots. That system brought up a whole generation of pilots, who were then taught at all levels to prepare, fill out and check the documentation associated with the organization and performance of flights, and of whom almost no one could ever have been called a technician of practical flying. The readiness of documentation and the readiness of a pilot are different things. Can an aviation commander, putting his signature to the training log, guarantee that the pilot who was trained "on paper," having written out quite a few lines of various documentation and drawn a host of diagrams and charts, is really ready to perform the flight mission?

It is not charts, log books and diagrams that fly, after all... Long-practiced techniques of training professional pilots exist. They exist both here and abroad. It is there that we must turn when training pilots for aerobatic groups. The pilot on such a team undoubtedly has to be a professional; amateurism during flights at low and very low altitudes leads to grave flight consequences, and there are no few examples of that.

One could say, in analyzing the experience of training pilots abroad, that the foundation of everything is a high level of proficiency, and that means overall flying time of 220—250 hours a year. They need to fly no less often than four days a week at 3—4 flights a day to accomplish that. The pilot must furthermore have complete mastery of advanced solo aerobatic maneuvers, flights at near-stalling angles of attack, both positive and negative, flights at low and very low altitudes, and the performance of advanced aerobatic maneuvers at those altitudes across the entire range of operating speeds. The performance of such flights gives the pilots confidence in the aviation hardware and in their own powers, and that confidence is based on their own knowledge and abilities.

Up to 80 percent of the flights are made as part of groups, either in pairs, the basic four-aircraft element or a group of nine aircraft—first in widely spaced flight formations, and then gradually reducing the intervals and spacings to very small ones. The principle of simple to complex is always maintained. The particular conditions of flying demand special approaches with regard to the selection of pilots for the flying team as well. Our aviation regiments, it should be pointed out, have always been rich in talent.

The team from the Kiev Military District took prizes quite often not all that long ago, when they used to hold the championships of the USSR Air Forces in higher aerobatics on jet aircraft. Such advanced pilots as Majors V. Hitaulin, S. Dyachenko, N. Kulich and S. Rotovskyy are true professionals. The flights of those experts evoke the enthusiasm of the spectators and the deserved recognition

of the sport judges. They and other sport pilots are worthy of continuing the traditions of the school of higher aerobatic maneuver.

The creation of a flight team that could represent the aviation of Ukraine and our nation here and abroad in worthy fashion would thus be the best continuation of those traditions today.

### Lack of Fuel Impacts on Air Combat Training

95UM0019C Kiev NARODNA ARMIYA  
in Ukrainian 30 Sep 94 p 2

[Article by NARODNA ARMIYA special correspondent Lieutenant-Colonel Nykyfor Lysytsya under the rubric: "The Combat Training of Aviators": "Everything Depends on the Fuel"]

[FBIS Translated Text] Silence has reigned almost all summer at the aviation practice area not far from Kamyanka-Buzka (Lviv area). Not a bomb or shell had exploded there. But the lingering silence was broken the other day by the rumble of jet engines. An aircraft was passing at great speed over the practice area. This was a weather reconnaissance aircraft, studying the weather conditions in the area of future weapons delivery flights.

But the weather was not the best that day. The wind chased the gray clouds across the sky, washing the ground with brief but very intensive rains. The sun only hinted at appearing. Teasing with its rays, it nonetheless gave no warmth. But the fliers were losing patience—the time had come, and the flights needed to start quickly, so as to make up for lost time. They were moreover to train under the most difficult of conditions, at weather minimums, which indeed existed that day.

The first attack aircraft from the air unit of Colonel Renat Sadykov appeared over the range at precisely the appointed time. It was flown by Major Viktor Vasylenko. The aircraft passed over the target range at low altitude, rocking from side to side. During those seconds the pilot was surveying the targets and activating the weapons. In an instant, like a hawk that has spotted its prey, it turned in the opposite direction and began gaining altitude. High up, the pilot executed a combat turn and raced down at a very sharp angle. The aircraft seemed to want to tear into the target field. Major Vasylenko, however, brought the aircraft out of the dive at minimum altitude. A barely noticeable speck separated from it at the same instant, and a second later a blazing flash appeared on the target range. That signified that the bomb had dropped right on the spot where the "enemy" field headquarters was located.

Another turn, a SAM evasive maneuver, and the attack aircraft was on a combat heading again. This time the pilot decided to strike using non-guided aerial rockets (NAR). They also struck the target precisely. The flight operations officer at the airfield, Major Oleksandr Kozyrev, noted the competent actions of the pilot and gave the OK to return the aircraft to the base airfield. So, Major Viktor Vasylenko had once again confirmed his qualifications as a pilot first class.

The smoke had not had time to clear from the first bomb strike when a second aircraft appeared in the practice area.



Hearing the voice of the pilot on the radio, Major Kozyrev remarked, "Commander in the air..."

This meant that Colonel Renat Sadykov himself had begun the execution of a weapons delivery flight. And, as befits the commander of a regiment, he performed precisely and competently. The bomb landed exactly on the target, and a cannon burst tore through it.

Lieutenant-Colonels Valeriy Derhal, Vasyl Kovalenko, Mykola Dyky, Majors Oleksandr Kovryhin and Serhiy Pozhydayev and Captains Oleksandr Zaikin and Viktor Molchanov were also lucky enough to be able to make flights that day. They all handled their combat-training missions successfully, and made well-aimed bomb strikes.

When you see such results, you could get the impression that it had been very easy to make the weapons delivery flights. That is not so, of course. A discussion that took place the day before the flights with the acting chief of the combat training department of the air corps, Lieutenant-Colonel Valeriy Derhal, can serve as confirmation of that.

"No self-respecting pilot," he indicated, "used to be able to say he was afraid to get into the cockpit of an aircraft. Today such feelings unfortunately do arise. And from highly qualified specialists as well. Speaking of someone in particular, I myself do not feel quite confident before a flight. Why?"

For greater persuasiveness the officer got out his flight log, opened it up and continued, "Look how much I used to fly. No less than fifteen or twenty hours every month. Now you can't get that much in a year. That is because I, as a check pilot, have virtually the most flying time in the formation. So uncertainty arises before flights, the more so before difficult ones where the delivery of on-board weapons against ground targets is expected. More than simple knowledge is required here, after all, maintaining constant proficiency is needed as well. It is almost impossible to maintain it with two-month interruptions."

Be that as it may, however, Lieutenant-Colonel Valeriy Derhal and the other pilots took the attack aircraft up into the sky and, in my opinion, demonstrated a lofty mastery and genuine quality. I asked the chief of staff of the air corps, Major-General Valeriy Boldyrev, who had been observing the combat operations of his subordinates, to comment on what had taken place at the practice area.

"The objective monitoring materials will provide a complete picture for each of the flights that were made," he began the conversation. "But even now, guided by my own observations, I can note that both the commander of the regiment and his pilots handled the mission successfully and hit the targets accurately. That, true, is not the most important thing today. What is important is that some of the pilots, after forced interruptions in their flying, regained their lost skills and came forward as leading combat crews of the regiment, which raises its fighting ability. Flights, including weapons delivery, took place thanks to those actions in the bomber regiments as well. More than twenty pilots and navigators were able to restore their flight qualifications there. The fighters and reconnaissance aircraft flew yesterday and today. There were also positive results with regard to the return to the

ranks of pilots who had large interruptions in their flight training. That was possible only because we were finally able to allocate at least some bits of aviation fuel to conduct combat training. If we had not made the flights yesterday and today, then almost no pilots who could take a combat aircraft up into the air solo would have been left in the regiment in a couple of weeks. It will be difficult for us to maintain a proper level of proficiency of the main crews with such a supply of fuel, however. The crews are primarily pilots first class right now. Considerably less time is required to maintain their training than those who are second or third class pilots. But fewer and fewer of the aerial warriors from the highest level of professional training remain. Some are being discharged into the reserves, while others are losing the right to fly for health reasons... Other specialists need to be trained to take their places. And fuel is needed for that, more than we are getting today. It is appropriate to indicate here that this requirement will grow, so to speak, in a geometric progression if we do not receive at least a minimal quantity, since more and more pilots will be leaving the ranks every day. Getting them back or training new ones will be tens of times more expensive for our state..."

So then, the chief of staff of the air corps undoubtedly makes sense. It is not for nothing that the people say that the miser ends up paying twice as much. Would it not be worthwhile not to skimp with less funding for aviation today than to overpay tomorrow?

#### **Problems in Assembling, Maintaining Flight Instructor Corps Noted**

95UM0019B Kiev NARODNA ARMIYA  
in Ukrainian 16 Sep 94 p 2

[Article by Lieutenant-Colonel Oleksandr Makarenko under the rubric: "Building Up the Armed Forces: Experience, Problems, Prospects": "What Will We Ruin Next?—The Task of Training the Flight Instructor Personnel of the Air Forces of Ukraine"]

[FBIS Translated Text] *The organization of training for flight-instructor personnel is known to be one of the "sore spots" of our aviation. Research in the realm of flight training that was carried out in the Soviet army showed how much the availability of highly professional cadre flight-instructor personnel has global significance for the successful functioning of the whole system of military aviation. We have, meanwhile, not been able for many decades to have, at least to some extent, satisfactory training for instructors and, for that reason, have experienced unwarranted economic expenditures and disrupted the fate of those people capable of flight work but not able to realize themselves.*

*I would like to recall in this regard the causes of failures in the training of instructors in the past, and to express my own opinion with regard to some of the fundamental elements in solving this problem in the Air Forces of Ukraine.*

A discussion of the functioning of any system of training, according to contemporary notions, can be logically complete if three groups of related questions are considered: why are you teaching? what are you teaching? and, how should it be taught? We find answers, if not all of them, in



the documents governing training. We uncover virtually no mutual connections among them, not to mention any scientific substantiation. This confirms once again that the training of instructor pilots has been structured only on the basis of experience, without the necessary theoretical studies. That is one of the reasons this problem has not been solved here over many decades.

The rule has moreover been inflexibly confirmed in aviation that "...if you have been trained in something, you are entirely capable of teaching it to someone else; and the better you have been trained, the better grounds you have to evaluate the structure of training, regardless of your own pedagogical training." The level of pedagogical erudition came to be understood to mean the degree of assimilation (for reproduction) of the contents of the Flight Instructor's Handbook on psychology, pedagogy and the techniques of flight training. Such ideas (often reduced to an absolute) unfortunately took hold in the minds of many, not only in the pilots' milieu and among their instructors, but also at the level of the developers of training. Pedagogical nihilism, in other words, is for the present invincible in military aviation. Surmounting it is one of the greatest difficulties in organizing the training of flight instructors, and indeed the entire system of flight training as a whole.

*Recall some history. There existed, under conditions of the planned development of aviation hardware, opportunities for the summarization of training experience; so the problem of instructors had been solved successfully only on first-generation aircraft, during the period that preceded Khrushchev's devastation of aviation. The Flight Instructor Training Courses that had existed up until that time were disbanded in 1959-60, concurrently with large cutbacks in aviation. But primarily second-generation aircraft were now in service; training on them forced corresponding changes in the study of theoretical disciplines, in simulator and special training and, naturally, in the utilization of cumulative experience. But then the trend toward the total devastation of aviation gained the upper hand, and we have been paying for the consequences of that ever since. The mathematization of aerodynamics, the engineering of the substance of training, the painting of pretty pictures and the amounts of paperwork, increasing from year to year (and to which more than 80 percent of the time that is relegated to flight preparation goes)—these negatives are the direct consequence of the dissolution of the organizational structure for the training of flight-instructor personnel and the destruction of continuity in flight training.*

These negatives could, of course, have been avoided over time, given a high level of development of aviation didactics and its realization in the documents governing the organization of flight training. But the question of the psycho-pedagogical sciences in aviation in general, and their relationship to the practice of training in particular, are still largely undeveloped even today. A place thus remained, in the organization of flight training, only for the sway of naked empiricism and commanders' decisions based on common sense and expediency. Everything then came to depend on the commanders, since the scarcity of aviation cadre personnel dictated the fulfillment of tasks only at the limits of the human capabilities of the fliers. Even the summarization of experience yielded to the commander's findings under those conditions.

Indeed, could it have been otherwise? The problem of replacements for the instructor corps was resolved in the second half of the 1960s simply by signing on graduates of the air training regiments and flight schools as instructors. And that is not all, either. It seems incredible, but the young—in every sense of the word—aviation teachers were sent to teach cadets with virtually no training. These manipulations for an introduction to the profession, as the training of instructors was officially called, ought to be called, in the light of pedagogical analysis, nothing other than absurd tragicomedy. And no fundamental changes have taken place in the training of instructors to this day.

The institute of command personnel in flight training, for which the aforementioned Flight Instructor's Handbook became the aviation-pedagogical Bible, was soon formed. The ideas gained by the instructors, incarnated in concrete proposals, were not fated to come true, however, since the will of the commander alone was not enough for their practical realization.

That is what happened with the creation of the Flight Instructor and Flight Commander Training Courses that were created in the city of Berdyansk. Taking into account the schism between academic research on flight training and actual practice, the creation of a methodological-research department was proposed there, the principal tasks of which were to be pursuing research on improvements, and seeking out and adopting new forms and methods of flight training, as well as summarizing the operating experience of the flight schools in improving techniques of flight training and devising recommendations pertaining to raising the quality of flight training and ensuring flight safety. A different structure was created in its place, however—a flight-methodology department. Moreover, no instructor-pedagogue proved to be in the position of organizer of the methodological work either. The idea of a special educational institution for the training of instructor personnel was discredited as a result.

The Flight Instructor and Flight Commander Training Courses were remade into the Flight Personnel Training Center in 1990. It is difficult to prove today that the solution of the problem of instructors is the most expedient in that structure. I will thus cite some arguments in defense of the idea of a special educational institution for the training of instructor personnel.

A process more ruinous than in 1959-60 is currently underway in military aviation. A real danger of a loss of continuity not only in the initial training for pilots, but also in combat training as a whole, exists in this regard. The scientific structuring of a system of instructors should thus inevitably be oriented toward the tasks of combat training. This is actually done most realistically in a special structure, where all of the departments and subunits are united by a common goal.

The comprehensive resolution of a whole series of questions that have not been scientifically studied is necessary for the functioning of the instructor training system. This could best be accomplished if research methodologists are present in a definite specialization, united not only by common tasks but also organizationally. It is also very important that experience and scientific achievements in

flight training be concentrated, and it will become possible to overcome the painful separation between theory and practice in the training of military aviation personnel.

Contract arrangements with scientific organizations, at the same time, restrict the precedence of the unrestricted decisions of commanders and senior officers. Science should resolve everything. Opportunities will be created right at the special educational institution for the formation of scientifically substantiated requirements with regard to optimizing the system of flight training. This becomes realistic when a structure is proposed that will, on the one hand, be a subcontractor at the level of training instructors both for educational and for line units, and on the other, will be a methodological center for the whole Air Forces system.

And finally, proceeding from its tasks, the special educational institution should have sufficiently high status. Highly professional cadre methodologist-researchers for initial flight training and combat training are necessary for this work. Very large material expenditures will undoubtedly be required for this, and which are very difficult to discuss in today's economic situation. But the creation of such a structure will ultimately be expedient, and not only from the standpoint of the immediate monetary terms. The unforeseeable nature of the prospects for aviation in today's climate makes it necessary to envisage the worst results as well. And the proposed structure provides for the preservation of conditions for the resurrection of military aviation in the future in such a case. And who knows, perhaps its creation will be the most important of the steps that are being taken today in the Air Forces of Ukraine.

#### Major-General Petrov on Air Combat Training Goals

95UM0019A Kiev NARODNA ARMIYA  
in Ukrainian 14 Sep 94 p 1

[News item by Lieutenant-Colonel Nykyfor Lysytsya: "Aviation Staffs Are Training"]

[FBIS Translated Text] A command/staff exercise involving all of the command and control structures of the Air Forces of our nation was held the other day in the context of the program of combat training. The primary goal of this measure, as indicated by Air Forces Chief of Staff Major-General Yuriy Petrov, was further improvement of the practical skills of commanders and staffs at all levels. The exercise took place without any physical actions by the troop. The results may be discussed conclusively only after they are summarized. It is clear even today, however, that it achieved its chief aim.

### NAVAL FORCES

#### Support, Sponsorship for Navy Discussed at 15 October Meeting

95UM0044B Kiev NARODNA ARMIYA  
in Ukrainian 18 Oct 94 p 1

[Unattributed news item: "The State Looks After the Sailors"]

[FBIS Translated Text] An expanded session of the Military Council of the Ukrainian Navy, the editors of NARODNA ARMIYA have learned, was held on October 15. Measures were considered pertaining to the realization of the edict of the president of Ukraine: "The Organization of Sponsorship of Ships of the Ukrainian Navy."

The commander of the Ukrainian Navy, Vice-Admiral Volodymyr Bezkorovaynyy, indicated in his presentation that this edict would assist in the consolidation of state bodies of all regions of the nation, as well as civilian political organizations, and the unification of their efforts toward the building of Ukrainian statehood. The resolution of the task of creating and strengthening the Ukrainian Navy will be accelerated thereby, and it will facilitate the removal of a number of the acute social problems of the servicemen.

It was emphasized at the session in particular that the interest in the organization of sponsorship ties should be a mutual one. The list of vessels, military units and naval institutions with which sponsorship ties may be arranged has been approved. The corresponding proposals for the leaders of the oblasts and rayons of Ukraine have been prepared.

An appeal has been made to the president, chairman of the Supreme Soviet of Ukraine, the leaders of the regions of the state and all of the Ukrainian people. It expresses gratitude for the understanding of the problems of the naval sailors and the desire to help the emergence of the young Ukrainian fleet, as well as for the concrete sponsorship assistance. The appeal expresses the hope that this patriotic endeavor will be taken up in all oblasts and by all the people.

#### Presidential Edict on Sponsoring Warships Published

95UM0024F Kiev NARODNA ARMIYA  
in Ukrainian 11 Oct 94 p 1

[Text of edict]

[FBIS Translated Text]

#### Edict of the President of Ukraine on the Organization of Sponsorship of Ships of the Ukrainian Navy

Assigning great significance to the fastest possible and most comprehensive development and strengthening of the Ukrainian Navy, and continuing the historical traditions of sponsorship of the fleet for the purpose of the timely resolution of social, living, material and cultural problems of the sailors, I DECREE:

1. That the initiative of the Committee on Issues of Social Protections for Servicemen of the Cabinet of Ministers of Ukraine, a number of executive committees of city and rayon Soviets of People's Deputies of Dnipropetrovsk oblast, and the Kirovohrad oblast administration and city committee on youth affairs, and pertaining to the sponsorship of the ships Ukrayina and Slavutych and the border patrol vessel Hryhoriy Kuropyatnykov, be supported.

2. That it be recommended that the chairmen of the oblast and Kiev and Sevastopol city Soviets of People's Deputies and the executive committees heading them, with a regard for the experience they have in this matter, organize the sponsorship of specific ships and other subunits of the naval forces of Ukraine by labor collectives, funds of a social and humanitarian thrust, and youth and other institutions and organizations.

That the list of ships and other military subunits for which sponsorship may be arranged be established by the command of the naval forces of Ukraine.

That it be considered expedient, in the procedure for sponsorship, to offer assistance to the military commissariats in the training of pre-draft youth for service in the fleet and the conduct of military-patriotic work with them, to carry out functions pertaining to the organization of cultural recreation of sailors and officers, and to provide ships and military subunits with food, fuels and lubricants and logistical supplies, as well as assistance in the resolution of housing, municipal and domestic services and other social problems of the sailors (job placement for the members of their families, the placement of children in children's preschool institutions, the granting of plots of land for individual construction, gardening, orchards etc.).

3. That the command of the naval forces of Ukraine, proceeding from the principles of the inviolable unity of the people and their armed forces, create the necessary conditions for the sponsorship of ships and other subunits of the Navy and promote the establishment of permanent sponsorship ties with labor collectives, youth institutions and organizations, and associations of citizens.

*President of Ukraine L. Kuchma*

*City of Kiev, 7 October 1994*

#### **Dnipropetrovsk Oblast Sponsors Warship 'Slavutych'**

*95UM0024E Kiev NARODNA ARMIYA  
in Ukrainian 23 Sep 94 p 1*

[Article by Captain-Lieutenant Albiy Shudrya of the Ukrainian Navy press center: "The Dnipropetrovsk Area Has Taken on Sponsorship of the Ukrainian Navy Ship 'Slavutych'"]

[FBIS Translated Text] A delegation from Dnipropetrovsk Oblast visited Sevastopol on a mission to offer assistance to the Ukrainian naval personnel there. The guests visited the special purpose ship Slavutych, where they were acquainted with the service and everyday life of the crew. The people from Dnipropetrovsk were able to become convinced with their own eyes, during the course of their meeting, that the young navy of Ukraine needs both moral and material support. The crew was given a shipment of humanitarian assistance brought from Dnipropetrovsk by two trucks.

"This act of good will by the workers of the oblast will not be the last," the leader of the delegation, Dnipropetrovsk Oblast Executive Committee Deputy Chairman Volodymyr Bondarchuk, assured the sailors at a meeting devoted to

signing an agreement on the establishment of permanent sponsorship ties between the oblast and the Slavutych KSP.

Addressing the guests, Commander of the Ukrainian Navy Vice-Admiral Volodymyr Bezkorovaynyy expressed confidence that a modern naval fleet would be created in Ukraine without fail thanks to the popular support.

The development of the ties between the sailors of the Slavutych and Dnipropetrovsk Oblast will be based on obligations on both sides. The Ukrainian sailors have expressed a readiness to take part in the military-patriotic indoctrination of the young, and to take some draftees from the Dnipropetrovsk region into their crew.

#### **Plans To Build Frigates in Mykolayiv Aired**

*95UM0024D Kiev NARODNA ARMIYA  
in Ukrainian 4 Oct 94 p 1*

[Article from "Inf. NA": "Will Mykolayiv Go Back To Building Frigates?"]

[FBIS Translated Text] A study of the problems of shipbuilding, including the question of preserving military shipbuilding in Ukraine, has been performed by a group of people's deputies in Mykolayiv at the request of the chairmen of the commissions on defense affairs, the base sectors of industry and regional economic policy, and issues of science, education and culture of the Supreme Soviet. They studied the state of affairs at the wharves, the KBs [design bureaus] and institutes in a three-day program. The deputies also met with the leaders of the oblast.

The creation of our own naval forces is an expensive matter, and Ukraine still does not have an officially approved conceptual framework for building them. There are clearly not enough scientific-research institutions in the structure of the naval department that would perform the skilled oversight of the design engineering of combat vessels, their constituent weaponry and their technical hardware. That situation is reflected negatively in financing, and is leading to the scattering of funds and the loss of time. The frigate Hayduk is an example of that. The newspaper FLOT UKRAYINY reported this year that an advance design for this multipurpose patrol craft has been approved, but the work has not moved forward one step since that time.

The first offspring of the Mykolayiv wharves was a sailing frigate. Will they return to the building of modern versions of ships of that class, and when? The answer to that question depends largely on the conclusions drawn by the people's deputies from their visit to the capital of Ukrainian shipbuilding. Their visit will obviously also have significance in determining the sources of financing for the national program of vessel- and ship-building as a whole; the preparation of a draft of that program has entered its concluding stages.

#### **Korkyshko, Other Leaders Examine Three-Day Naval Exercise**

*95UM0024C Kiev NARODNA ARMIYA  
in Ukrainian 30 Sep 94 p 1*

[Article by NARODNA ARMIYA special correspondent Captain 2nd Rank Oleksandr Shcherbakov under the



rubric "The Training Year: Concluding Stages": "The Maritime Shield of Ukraine Is Growing Stronger, Developing and Performing Its Mission"]

[FBIS Translated Text] *A command/staff exercise was conducted for three days in the Ukrainian Navy. It was the principal combat training function of this branch of the armed forces during the training year that is coming to a close—which, by the way, was a quite intensive one for the young fleet.*

It is worth pointing out that all of the ships of the Navy went out to sea repeatedly, and practiced course tasks and combat exercises. The patrol craft Hetman Sahaydachnyy moreover made the first autonomous trip across the Mediterranean and to the Atlantic Ocean in the history of the naval forces of our independent state, to the French port of Rouen in July of this year for the "Armada of Freedom" holiday celebrating the 50th anniversary of the Normandy landing by the allies in World War II.

The Hetman Sahaydachnyy also recently met naval vessels from France and Romania that were making a call to Odessa, and conducted training in the western part of the Black Sea with them.

The crew of the small ASW ship Lutsk also proved itself in action, taking part in the Breeze-94 joint naval exercise with American, Bulgarian, Rumanian and Turkish vessels and a ship from the Black Sea Fleet in August of this year. The crew was the first to detect a submarine of the hypothetical enemy, for which it received the gratitude of the leader of the exercises, the commander of the Bulgarian Navy.

The air-cushion assault ship Donetsk made the crossing to its permanent base location. The special purpose ship Slavutych went out to sea with cadets from the Sevastopol Naval Institute, who acquired good navigational practice thereby.

The brigade of marine infantry raised the level of their combat training significantly, introducing in particular methods and techniques of combat training that are used by officers of the U.S. Marines.

The forces of naval aviation also accomplished a certain amount of work this year. The main result is that this branch of service even exists, while the naval aviators, regardless of the difficulties of an economic nature, are flying and conducting combat exercises.

The Navy, in short, has accomplished a great deal over almost a year. The members of an integrated group from the General Staff of the Armed Forces of Ukraine, led by Deputy Chief of the General Staff and Chief of the Operations Directorate of the General Staff of the Armed Forces of Ukraine Lieutenant-General Anatoliy Korkyshko, were convinced of that as well. They took active part in the command/staff exercise, and carried out a series of surprise inspections.

The brigade of marine infantry and the Sevastopol Naval Institute in particular were placed on alert, and the patrol craft Hetman Sahaydachnyy was shifted to a higher state of combat readiness. The representatives of the General Staff were entirely satisfied with the actions of the naval staff

and directorates and the units and subunits that were inspected, as Lieutenant-General Anatoliy Korkyshko stated when summing up the exercise.

He indicated in particular that a considerable augmentation of the base of combat readiness and command-and-control system of the naval forces had taken place. The fine professional training of the officers of the staff and the directorates was clearly discernible. Ukrainian Navy Commander Vice-Admiral Volodymyr Bezkorovaynyy, Chief of Staff Rear-Admiral Oleksiy Ryzhenko and Operations Directorate Chief Rear-Admiral Viktor Fomin all undoubtedly deserve credit for this.

The naval forces in their current composition, Anatoliy Serhiyovych feels, are prepared to perform their inherent tasks. There are shortcomings, however, that need to be eliminated. Certain staff exercises under the leadership of the Naval Chief of Staff need to be incorporated into the practices of the staff and directorates of the Navy. The overstepping of the time frames for the performance of combat missions must be eliminated as much as possible. Sufficient financing and logistical support for naval combat training must be sought from the Ministry of Defense, so that the ships have the opportunity not only to go out to sea, but also to perform full amounts of live missile, torpedo and depth-charge firing.

Lieutenant-General Anatoliy Korkyshko has given the naval command the task of analyzing the shortcomings that were revealed in the course of the command/staff exercise, composing a plan to eliminate them, and coordinating it with the Chief of the General Staff of the Armed Forces of Ukraine. The shortcomings are to be eliminated before November 5 of this year.

The allotted time will naturally pass as if it were a single day. The officers of the naval staff and directorates thus began intensive building work immediately following the conclusion of the exercise. The commander of the Ukrainian Navy, Vice-Admiral Volodymyr Bezkorovaynyy, in summing up the results of the exercise, in any case promised those present that things will not be easy in the command corps of the fleet this year or next. Building a national navy, figuratively speaking from square one, is not easy. But for the time being there is no other way.

#### ASW Ship 'Lutsk' Performs Well

95UM0024B Kiev NARODNA ARMIYA  
in Ukrainian 21 Sep 94 p 1

[Unattributed news item: "The 'Lutsk' Is Better"]

[FBIS Translated Text] The small ASW ship Lutsk has performed a combat-training mission at a high level of quality.

The crew went out to sea twice during the week, where they practiced a series of combat exercises. Training was conducted in particular on the establishment of interaction with the territorial forces and the PPO [air-defense] forces of Ukraine; the personnel also solidified their practical working skills at their combat posts.

The command of the brigade of surface vessels has held up the crew of the Lutsk as an example for all the personnel of the formation.



## CENTRAL ASIAN STATES

**Kazakh Agreement With Russian Federation on Military Cooperation****Text of Agreement**

954K0135A Almaty SOVETY KAZAKHSTANA  
in Russian 19 Oct 94 p 2

[Treaty between Republic of Kazakhstan and Russian Federation on Military Cooperation, signed in Moscow on 28 March 1994]

[FBIS Translated Text] The Republic of Kazakhstan and the Russian Federation, hereafter referred to as the contracting parties,

Guided by the Treaty on Friendship, Cooperation, and Mutual Assistance between the Republic of Kazakhstan and the Russian Federation of 25 May 1992,

Mindful of earlier agreements on cooperation in the sphere of defense within the confines of the Commonwealth of Independent States and on a bilateral basis in the interest of guaranteed collective security,

Aware of the need for the precise and consistent fulfillment of the obligations assumed by the contracting parties in connection with the Treaty on the Reduction and Limitation of Strategic Offense Arms of 31 July 1991 and the protocol signed in Lisbon on 23 May 1992, hereafter referred to respectively as the START-I Treaty and the Lisbon Protocol,

Acknowledging the need for united effort and concerted action for reliable joint defense within the confines of the common military-strategic territory,

And expressing the wish to give the military cooperation between the contracting parties a new quality and to provide it with a legal foundation,

have agreed as follows:

**Article 1**

For the purposes of this treaty, the following terms will be defined in this way:

"Strategic nuclear forces" (SNF)—military elements, including large and small units, institutions, organizations, and facilities, armed with or storing strategic nuclear weapons, and the units securing their operations.

"Integrated military units"—large and small units of the Armed Forces of the Republic of Kazakhstan and the Armed Forces of the Russian Federation assigned by the contracting parties for joint defensive missions.

"Facilities used for defensive purposes"—test sites, military facilities, the facilities of industrial representatives, and battlefields, located on parcels of land within the territory of the contracting parties and capable of being used by the parties jointly or transferred by one of the parties to the other, including lease transfers, for use for military purposes in the interest of strengthening the defensive capabilities of both parties.

"Delivery system"—the intercontinental ballistic missile (ICBM), the heavy bomber (HB), and the air-launched cruise missile (ALCM).

"Nuclear munitions"—the ICBM or ALCM warheads containing a nuclear charge.

**Article 2**

The contracting parties reaffirm their commitment to friendly interstate relations based on the principles of mutual respect for state sovereignty and territorial integrity, the inviolability of borders, the peaceful settlement of disputes and the refusal to use force or threats of force, and the conscientious fulfillment of treaty commitments in accordance with the Treaty on Friendship, Cooperation, and Mutual Assistance between the Republic of Kazakhstan and the Russian Federation of 25 May 1992, as well as the observance of other common standards of international law.

In the event of a situation threatening the security, independence, or territorial integrity of one of the contracting parties, the Republic of Kazakhstan and the Russian Federation will hold consultations without delay and undertake specific actions to give one another the necessary assistance, including military assistance, in accordance with international law, the bilateral Treaty on Friendship, Cooperation, and Mutual Assistance of 25 May 1992, and the Treaty on Collective Security of 15 May 1992.

**Article 3**

Strategic nuclear forces deployed within the territory of the Republic of Kazakhstan and the Russian Federation will perform missions in the security interests of the contracting parties.

The Republic of Kazakhstan, with a view to the existing system for the functioning of the strategic nuclear forces located within its territory, will assign these military units of the strategic nuclear forces the status of strategic nuclear forces of the Russian Federation—Russian military elements temporarily deployed within the territory of the Republic of Kazakhstan.

Until all of the strategic nuclear weapons temporarily located within the territory of the Republic of Kazakhstan have been eliminated or withdrawn to the territory of the Russian Federation, the decision on the need to use these weapons will be made by the president of the Russian Federation with the approval of the president of the Republic of Kazakhstan.

In these cases, the Russian Federation will guarantee the institution of organizational and technical measures to preclude the unauthorized use of strategic nuclear weapons located within the territory of the Republic of Kazakhstan.

The terms of the presence of strategic nuclear forces within the territory of the Republic of Kazakhstan, corresponding to the standards of international law, will be defined in a separate agreement.

#### Article 4

All movable and immovable military property will belong to the contracting party within whose territory it was located on 31 August 1991.

The Russian Federation acknowledges the right of the Republic of Kazakhstan to receive compensation (in monetary form or some other form) equivalent to the value of the materials, agreed upon by the contracting parties, in nuclear munitions and delivery systems, as well as equipment and other property of the strategic nuclear forces located within the territory of the Republic of Kazakhstan on 31 August 1991 before their withdrawal to the territory of the Russian Federation.

Appraisals of the value of the materials and equipment and of the Russian Federation's expenditures on their maintenance, transport, and recycling, as well as the proportional share of compensation to be granted to the Republic of Kazakhstan, will be conducted according to a procedure agreed upon by the contracting parties.

Property rights to facilities, buildings, and installations erected after 31 August 1991 or weapons, vehicles, equipment, and property brought into the territory after this date will be exercised by the contracting party financing these operations. In the event of shared financing, property rights will be defined in separate agreements with consideration for proportional contributions.

The contracting parties reaffirm the possibility of the use of facilities and installations located within the territory of one contracting party by the Armed Forces of the other. The list of military facilities and installations and the procedures and terms of their use will be established in separate agreements.

Proceeding from the need for improvement in joint defense and the consolidation of national security, each of the contracting parties may turn the property of its own Armed Forces over to the other party for possession and use on mutually beneficial terms, including the terms of a lease, in accordance with its own legislation.

One contracting party will not be obligated to compensate the other, unless other agreements stipulate otherwise, for improvements made by the other party in military facilities or on parcels of land located within the territory of the first party and used for military purposes, or for buildings or installations remaining on these grounds at the time this treaty expires, or for the early surrender of facilities and parcels of land.

#### Article 5

The status of facilities used jointly by the contracting parties for defensive purposes will be defined in line with the legal authority of the Republic of Kazakhstan and the Russian Federation as states responsible for the management of these facilities and their operation and material and technical support, as well as the joint authority of the contracting parties in the supervision of the activity and use of these facilities for the enhancement of the defensive capabilities of the parties.

During the performance of functions connected with the management, operation, and material and technical support of the SNF and of defense facilities leased from one another, the contracting parties will be fully responsible for their safe operation and the maintenance of the necessary levels of nuclear safety and other types of security.

During these processes, each of the contracting parties pledges to refrain from actions that might in any way prevent the other party from fulfilling its obligations, including those stemming from the START-I Treaty and Lisbon Protocol, and prevent the functioning of its government agencies and/or damage state and/or private property.

The Russian Federation will take measures agreed upon with the Republic of Kazakhstan to eliminate the after-effects of the operations of strategic nuclear forces located within the territory of the Republic of Kazakhstan, as well as facilities used for defensive purposes and turned over to the Republic of Kazakhstan by the Russian Federation. In the event of emergencies, the contracting parties will take immediate measures to eliminate the causes and will notify one another of this without delay.

#### Article 6

With a view to the importance of the strict observance of the provisions of the USSR-U.S. Treaty on the Limitation of Anti-Ballistic Missile Defense of 26 May 1972, and with a view to the mutual interests of the Republic of Kazakhstan and the Russian Federation, the contracting parties will proceed from the knowledge that the Sary-Shagan test site will be used for the purpose of developing and improving ABM systems or components deployed within the region as specified in Article III of that treaty. The conditions of the use of the Sary-Shagan test site by the contracting parties will be defined in a separate agreement.

#### Article 7

The contracting parties will give one another mutual assistance in the implementation of multilateral international treaties and political commitments for the reduction and limitation of strategic offensive and conventional arms.

Each of the contracting parties must consider the interests of the other party during the conclusion of treaties and agreements with third states on military cooperation and deliveries of equipment and weapons.

#### Article 8

The defense ministries of the contracting parties will draft and conclude separate agreements on matters pertaining to the joint planning and use of troops in the interest of the mutual security of the parties and will plan and conduct joint operations in the preparation of command and control agencies and the training of troops within the territory of either of the parties by mutual agreement.

The contracting parties may form integrated military units under a joint command.

#### Article 9

The management, personnel hiring, and material and technical supply procedures for facilities used jointly by

the contracting parties for defensive purposes, and their integrated military units and joint command, will be defined in separate agreements.

#### Article 10

The contracting parties will cooperate in the sphere of military intelligence.

Each of the contracting parties pledges not to conduct military intelligence activities directed against the other party.

#### Article 11

The contracting parties will conclude an agreement on the use of the forces and resources of the Navy of the Republic of Kazakhstan and the Navy of the Russian Federation in the Caspian Sea basin for joint operations to safeguard the security of the parties.

#### Article 12

Questions connected with the legal status of the servicemen of the Armed Forces of one of the contracting parties serving within the territory of the other party and of members of their families, their pension security, and other matters pertaining to the social and legal protection of these individuals, will be addressed in a separate agreement.

The contracting parties will extend the guarantees of the application and exercise of social and civil rights envisaged in their legislation to their citizens in military service outside the boundaries of their state.

The contracting parties will acknowledge the validity of military titles, state honors, and educational and pension documents of servicemen, the privileges granted to servicemen, individuals with military discharges, and members of their families, in accordance with the existing legislation of the contracting parties, with a view to their term of service in the Armed Forces of the former USSR and their subsequent service in the armed forces of the contracting parties, including contracted military service.

The contracting parties will guarantee civilian personnel equal rights, irrespective of their citizenship, to employment in military units and the enterprises and institutions of their armed forces and will include this period of their employment in their total term of service for pension eligibility.

When one of the contracting parties is inactivating its military units, establishments, and institutions located within the territory of the other party, the former party will compensate civilian personnel in accordance with its own labor legislation.

The contracting parties will consult one another on ways of improving and coordinating their national legislation, including laws on the financial and social security of the servicemen and civilian personnel of the armed forces and on the privileges granted to servicemen and individuals with military discharges and the members of their families.

#### Article 13

Members of the staff of military units, establishments, and institutions will not require visas to cross the state border

of the contracting parties or require travel passports or special notations in passports if they carry identification (military service cards or passports) and travel authorization papers from their commanding officers (furlough passes or travel orders), and their minor children will not have to meet these requirements if their names are listed on the documents. When they are sent to a new service location or their permanent place of residence, they will transport their personal belongings across the state border between the contracting parties without the payment of duties, taxes, and other fees.

Subunits, units, and teams of more than 50 servicemen of the armed forces of one of the contracting parties may cross the state border of the other party after advance notification and by agreement of the defense ministries of the parties.

#### Article 14

Material and technical supply operations for military elements will be conducted by the defense ministries of the contracting parties on mutually beneficial terms, guaranteeing the maintenance of their armed forces and integrated military units at a high level of combat readiness and combat effectiveness, and will be regulated by separate agreements.

#### Article 15

The activities of the military elements of one of the contracting parties located within the territory of the other party will be financed by the party with jurisdiction over them.

Questions connected with the circulation of the national currencies of the contracting parties for the daily needs of the servicemen and military elements of the parties located within their territory will be regulated in accordance with the agreement between the National Bank of the Republic of Kazakhstan and the Central Bank of the Russian Federation.

#### Article 16

Each of the contracting parties pledges not to violate the state and public security of the other party and the personal safety of its citizens during its activity in facilities and on parcels of land belonging to the other party.

#### Article 17

The contracting parties will agree on policy in the sphere of the joint development, production, repair, and shipment of arms, military vehicles, and material and technical resources in the interest of the comprehensive support of the armed forces, facilities used for defensive purposes, and integrated military units, and will coordinate aspects of military-technical cooperation, securing the preservation and development of existing cooperative relationships between enterprises developing and producing weapons and military hardware. Deliveries and services will be performed on a duty-free basis at prices set by each of the contracting parties for their own needs. Prices and rates will be agreed upon by the parties and will be defined in a separate agreement in each case. Questions connected with the coordination of policy in the sphere of arms and military hardware and reciprocal deliveries of goods (and



work or services) will be addressed in special agreements on the basis of joint weapons programs.

The contracting parties will cooperate in the defense industry and in scientific research and experimental design products with the preservation and development of existing patterns of specialization and cooperation.

The contracting parties will create an intergovernmental commission on industry and scientific research and experimental design projects for the pursuit of the policy agreed upon in the military-technical sphere, with the preservation and development of existing patterns of specialization and cooperation.

The contracting parties will create an intergovernmental commission on military-technical cooperation by the Republic of Kazakhstan and the Russian Federation for the pursuit of the policy agreed upon in the military-technical sphere.

#### Article 18

The contracting parties will retain their existing procedures for the education and training of officers and junior military specialists for the armed forces of the parties on the basis of the corresponding agreements.

#### Article 19

The contracting parties will retain the existing network of all types of communications, air defense, antiballistic missile defense, and early warning systems and supply lines and will agree on measures for their development.

The contracting parties will cooperate in the sphere of military transport movements. The procedures of this cooperation will be defined in a separate agreement.

The contracting parties will retain the common air space for flights by military and civilian aircraft and the joint flight control system on the basis of the corresponding agreements.

#### Article 20

For the purpose of reinforcing discipline and order in the armed forces, in facilities used for defensive purposes by the contracting parties either jointly or on the terms of a lease, and in integrated military units, the contracting parties will coordinate operations in the law enforcement sphere.

#### Article 21

The contracting parties will plan measures jointly and render mutual assistance in the resolution of ecological problems connected with the after-effects of military operations.

#### Article 22

This treaty is not directed against any other states and will not affect the contracting parties' rights and obligations stemming from other international treaties to which they are party.

#### Article 23

The contracting parties will not allow the use of their territory by a third state for activity directed against the other contracting party.

#### Article 24

For the purpose of implementing the provisions of this treaty, and in the interest of broader and more intensive cooperation in the sphere of defense, the contracting parties will form a joint committee, which will act in accordance with a statute approved by the parties.

#### Article 25

This treaty may be amended and supplemented by mutual agreement of the parties.

The treaty must be ratified and will go into force on the date of the exchange of instruments of ratification.

The treaty will be concluded for a term of 10 years. It will be renewed automatically for the next 10 years unless one of the parties notifies the other, in writing and at least six months before the expiration of this term, of its wish to withdraw from the treaty.

This treaty will be in force as an interim agreement on the date it is signed.

Done in Moscow on 28 March 1994 in two copies, one in the Kazakh language and one in the Russian language, with each version being equally authentic.

Republic of Kazakhstan  
[Signed] [Signature illegible]

Russian Federation  
[Signed] [Signature illegible]

#### Protocol Record Concerning Article 4

954K0135B Almaty SOVETY KAZAKHSTANA  
in Russian 19 Oct 94 p 2

[Protocol Memo of Agreement on Meaning of Article 4 of Treaty Between Republic of Kazakhstan and Russian Federation on Military Cooperation of 28 March 1994]

[FBI's Translated Text] The Republic of Kazakhstan and the Russian Federation will proceed from the understanding that the reference in the first paragraph of Article 4 of the Treaty Between the Republic of Kazakhstan and the Russian Federation on Military Cooperation of 28 March 1994 to the property rights of the Republic of Kazakhstan to the movable military property located within its territory on 31 August 1991, specifically mentioning nuclear munitions, will apply to the material of these munitions, and not to the munitions in assembled form.

Republic of Kazakhstan  
[Signed] [Signature illegible]

Russian Federation  
[Signed] [Signature illegible]

### Emigration of Russian Officers Leaves Uzbek Army in Critical State

954K0217A Moscow NEZAVISIMAYA GAZETA  
in Russian 22 Oct 94 p 3

[Article by Yelena Fomina, under rubric "Uzbekistan":  
"Russian Officers Depart for Russia: The Uzbek Army Is  
Not Becoming Stronger From This"]

[FBIS Translated Text] The economic crisis, the increased concern about the state language on the part of officials who are requiring absolutely everyone within short periods of time to speak Uzbek, the nationalism in everyday life, the infringement on the rights of Russians on the job, etc., are forcing more and more people to leave Uzbekistan. With every passing month the number of people departing has been rapidly increasing. Whereas during the first months after Uzbekistan proclaimed its independence the total number of people who left the republic, according to data provided by the consular service of the Russian embassy in Uzbekistan, was only 16 (this data is as of December 1992), by December 1993 the number had increased to 4190. But in August of this year, 16,645 left. The total number of persons who left for Russia in 1993-1994 is 62,370. But even that figure does not show the real situation, since a very large number of people depart for Russia without dealing directly with the Russian embassy in Tashkent, but, with the aid of relatives living in the Russian Federation, get settled independently.

Teachers, doctors, scientists, artists, musicians, and professional workers are leaving Uzbekistan. The republic is already painfully feeling the shortage of these categories of workers, especially since the members of the indigenous population basically prefer two occupations—worker in the trade system, and militiaman. Uzbeks are not eager to go to work in plants or factories. The number of doctors among them is larger, but still Uzbeks prefer to go to Russian or Jewish doctors. The profession of teacher is a rather respected one here, but the salaries paid to teachers is not high, while Uzbek families are large—with an average of 5-7 children each. Obviously, it is for that reason that practically the entire urban population of the republic, from the youngest child to the oldest adult, engages in trade. True, nowadays there is no longer much to trade in. Cigarettes, chewing gum, poor-quality Turkish and Chinese items, and vodka are the basic items being sold by street vendors. More expensive items are not particularly in demand, since there is a cash crisis in the republic: the exchange stations under the Central Bank of Uzbekistan operate for exactly 15 minutes.

The army occupations are also not highly thought of by most of the population. Every self-respecting parent who has the necessary amount of money attempts to keep his child from being drafted into the army. Discussing this, a businessman whom I know explained, "At one time my father did this for me, and now I am obliged to do the same thing for my own son." Later he showed me a purchased military identification card: "Praise be to Allah! Now my son can get married without worrying about anything!" Previously the young men who served were basically those whose parents did not have any money, and military service was perceived, and is still perceived, as a heavy

obligation. There were also few representatives of the indigenous population in the officer cadre service. That is why the process of forming Uzbekistan's national army is proceeding slowly. True, a new everyday uniform and full-dress uniform for enlisted men are being designed, and the Regulations are being reviewed. But at the same time the ranks of the republic's armed forces are remaining empty because the republic has introduced a requirement that knowledge of the state language is mandatory, and because of the difficulties that Russian-speaking servicemen, bureaucrats, and fault-finders have in getting promoted. On the other hand, the authorities are hindering their departure from Uzbekistan, since they understand the impossibility of rapidly supplementing their dwindling ranks with Uzbek specialists. Here is a story told by a certain Russian captain (his name is not given, in the interests of the officers serving in a communications brigade of the Republic of Uzbekistan MO [Ministry of Defense]). "Our unit provides communications for the Ministry of Defense. As of today, we are 30-percent underequipped. There is a low training level among the military specialists who have come to replace the Russian officers who have left. And this can be explained. The MO has organized so-called 'accelerated military courses,' after the completion of which 90 percent of the graduates are recognized as being professionally qualified. All this has led to a situation in which, at recent exercises, our unit failed to execute its combat assignment. The situation is no better in the republic's air force. For example, the Tuselsky Regiment, which is billeted in Tashkent, is served by only four persons, and all of them will be leaving for Russia soon. There are also no local cadres either among the flight personnel or the service personnel. The regimental command element was recently transferred to Russia, and the equipment is on the brink of annihilation. There are no new aircraft, and there is nowhere to get components for the old ones. The situation is the same with the squadron in Nukus. The old technical service, plus the shortage of components, make the remaining pilots simply afraid of approaching the aircraft. Under these conditions there cannot be any thought of carrying out flights."

What, then, are the authorities doing about this? Their methods consist precisely in using coercion to keep the Russians in local service everywhere, refusing to allow them to transfer to Russia even if they have the necessary authorization from the GUK [Main Administration of Personnel] of the Russian Ministry of Defense.

Departing officers cannot sell their apartments or transfer them to anyone else's use, and this includes privatized ones. They are required to find a replacement for themselves, and that is practically impossible. Meanwhile the Russian embassy in Tashkent is visited by as many as 100 servicemen from all regions of Uzbekistan every day.

Without a doubt, everyone understands how dangerous it is for Uzbekistan to have a weak army under present-day conditions. The war in neighboring Afghanistan, the military actions in Tajikistan, and the republic itself, essentially speaking, is in a state of diplomatic war with Tajikistan. The changeover to a contract basis would promote the resolution of the problem, but Uzbekistan is obviously incapable of economically withstanding that load.

## DEFENSE INDUSTRY & CONVERSION

### 'Albatross' Amphibian 'Absolutely Essential' for Country

MM0711190594 Moscow KRASNAYA ZVEZDA  
in Russian 5 Nov 94 p 4

[Article by Aleksandr Manushkin: "The Future of the 'Albatross.' Russia Has Unique Experience of Creating Amphibian Aircraft"]

[FBIS Translated Excerpts] A great many people in Russia and the world over were shocked by the loss of the nuclear submarine Komsomolets. Il-38 aircraft arrived on the scene of the disaster three and one-half hours after the SOS was transmitted. Not adapted for landing on the water, they were unable to give sufficient help to the drowning seamen. Obsolete Be-12 amphibians were not sent to the disaster area because of the hydrometeorological conditions (the towering waves could have bent the propellers). Specialists claim that if an A-40 "Albatross" amphibian had been sent to the disaster area virtually all the crew members who had gotten out of the submarine would have been saved. But the Navy did not have such an aircraft. [passage omitted]

The "Albatross" is the world's biggest amphibian. It is 42 meters long, with a wing span of 42 meters, and 11 meters high. It is nearly three times bigger than the Be-12. The A-40 is capable of carrying any full set of mine, bomb, or torpedo weapons available to the Russian Army and of actively seeking surface and underwater targets. Its modern radar and navigation equipment enables it to perform combat tasks in easy and difficult weather conditions, day and night. Carrying 6.5 tonnes, the "Albatross" can cover a distance of 4,700 km, and around 11,000 km if refueled in the air. No other country in the world has an aircraft like the A-40.

We should be proud of this and swiftly put the aircraft into production. But.... Work on the A-40, for example, was included in the state order for 1994. But no funding is forthcoming.

Meanwhile, Western firms are very interested in the "Albatross." Particularly after it was exhibited at many international air shows. No wonder, because they simply do not have anything like it. The Americans say it will take them at least 10 years to develop an aircraft like the "Albatross."

One can only marvel at the patience, courage, and patriotism of the Taganrog aircraft designers. How come, given the total lack of state support, they have not gone abroad? Indeed, the know-how this design bureau possesses is worth money, a great deal of money.

But, against all the odds, the Taganrog specialists are continuing to work on versions of the A-40. Work is being done to install a highly efficient electronics system and highly economical engines. The construction of the first A-42 search and rescue amphibian is nearly complete. This is precisely what was needed to save the crew of the sinking Komsomolets submarine and other ships in trouble at sea or on the ocean.

Within the framework of the conversion program the Taganrog aircraft designers are developing passenger, freight and passenger, and freight versions of the A-40 amphibian. The passenger version will carry around 105 people and has a range of 4,000 km. The freight and passenger version has two types of cabin for 37 or 70 passengers.

Given the relevant equipment, the "Albatross" turns into a "firefighter." The unique thing about it in this case is that the A-40 takes up water while skimming over the sea. In short, not only the military, but the country as a whole needs the "Albatross." This is another virtue. But there has still been no demand for this remarkable aircraft in our country.

KRASNAYA ZVEZDA has written about the future of the "Albatross" on several occasions. The aircraft is essential, absolutely essential. Both as "antisubmarine warrior" and as rescuer. Of course, there will be "people with money" on the other side of the Atlantic who will be able to buy this aircraft. But how one would like the "Albatross" to be guarding our sea borders, rather than someone else's.

### Sales of MiG-29 as MAPO's Trump Card

MM0711192194 Moscow KRASNAYA ZVEZDA  
in Russian 5 Nov 94 p 4

[Interview with Aleksandr Ageyev, leader of Moscow Aviation Production Association's Strategic Analysis Service, by Valentin Rudenko under the "View of Problem" rubric; date, place not given: "We Must Be Fully Armed in Arms Market"—first paragraph is introduction]

[FBIS Translated Excerpt] Aleksandr Ageyev is a leading specialist in strategic planning and economic analysis. He is the author of scientific works on questions of managing innovations and of enterprise. He is a participant in the elaboration of a concept and strategy for Russian foreign policy, economic security, and military-technical cooperation. He graduated from Moscow State University and completed postgraduate studies at the USSR Academy of Sciences World Economics and International Relations Institute. He has gained practical work experience in the United States and South Korea. He was chief of the Russian Ministry of Foreign Economic Relations Strategic Analysis Main Administration and a member of its collegium. Since January this year he has been adviser to the general director of Moscow Aviation Production Association (MAPO) and leader of its strategic analysis service. [passage omitted]

[Ageyev] Any firm which intends to make its presence felt in the world market seriously and in the long term must inevitably create and tirelessly improve the mechanisms of foreign economic operations. Every deal to sell fighters, even if it involves one or two aircraft, is an event on a geopolitical scale. Behind it there is a mass not only of economic but also of political, technical, and even psychological preferences and interests. In order to understand what kind of improvements are taking place in decision-making mechanisms and in changing the balance of forces in a particular region, the finger must be constantly kept on the pulse of events.



To solve these tasks MAPO has a full spectrum of sections which plan and forecast, study aviation market conditions and development trends in it, seek and assess partners, arrange talks, organize the movement of foreign currency funds, deal with after-sales servicing, maintenance, spare parts delivery, and so on. We have at our disposal modern information technologies, a telecommunications network, and access to domestic and foreign data banks. We are devoting serious attention to image policy and advertising companies.

[Rudenko] Making a correct forecast is an extremely difficult thing. Especially when the world community and our country are now and again shaken by economic and political cataclysms.

[Ageyev] Permit me to answer in the words of Hegel, who once observed that there is nothing more practical than a good theory. Practicality is ensured, first, by the effectiveness of the intellectual technologies being applied; second, by the breadth and reliability of the information base; and third, by feedback from practical work. Life really does constantly confront us with a high degree of uncertainty both in the foreign market and inside the country.

All we have to do is recall the wholesale reduction in the defense order, which precipitated a substantial reorganization of the enterprise's work. Both quantitatively and qualitatively. In order to avoid losing our heads in this situation and to avoid letting things slide, and even to show "optimism of the will" against the background of "pessimism of the mind," we must recall history. It is there that we will find the precedents which made it possible to solve such problems in the past. Several times our aviation firm, Russia's oldest, has been in similar and maybe even more difficult conditions. A dynamic series of such precedents makes it possible, paradoxical though it may seem, to predict the future accurately. We associate it largely with the world market for combat aviation, in which our firm is not only successfully competing with Western aerospace companies but is also helping other countries to develop their aviation industries.

[Rudenko] Currently MAPO's trump card is possibly the MiG-29 tactical [frontovoy] fighter. And MiG's in general. In the last three decades you have delivered 3,000 combat aircraft abroad. But sooner or later even the most advanced planes become virtually obsolete. Do you see a future for the MiG-29 or will some new model have to be urgently put into production?

[Ageyev] First, I want to say that MAPO's main trump card is not the MiG-29 but the people making it. As long as we have a "golden cadre fund" the enterprise will not be threatened by any reorganization. It will be able not only to survive but also to develop.

As regards the MiG-29, this plane is being constantly improved. The MiG's now being built are superior to the original models in a number of ways. On the whole their combat effectiveness is two to three times higher. The MiG-29 was designed to win air superiority and is completely up to these tasks. Since the life cycle of our aircraft is in the order of 20-25 years, it will be flying for at least the first quarter of the next century. Naturally, this plane's export prospects are quite attractive to us.

Incidentally, what also convinces us of this is the state of affairs regarding development of the "Eurofighter," which was originally planned as a plane of the generation following the MiG-29. But it is now clear to specialists that, in terms of combat effectiveness and flying performance characteristics, it does not exceed the range of our MiG's capabilities.

[Rudenko] In the light of your forecasts, what does tomorrow hold for the association?

[Ageyev] MAPO will undoubtedly continue to be among the leaders of the world aviation construction business. I think that as early as in the near future we will be able to implement the idea of forming on the association's base a powerful scientific-financial-industrial group specializing in the development, production, and sale of competitive aviation equipment and other high-technology products on the world market. Here it is proposed to concentrate the main efforts, as before, on producing the MiG-29 fighter and its variants.

Naturally, we will also promote conversion programs. Work is under way on the MiG-AT training aircraft, the Il-103 business-class plane, the "Grach" multipurpose aircraft, and the "Aviatika-890" ultralight.

The people at MAPO know how to make not only aircraft but also many other things well. Not everyone, for example, knows that the Kremlin stars, equipment for the mausoleums of Lenin and leaders of several countries, and many other unique high-technology products were produced by our association. At present, besides aviation equipment, we are producing equipment for airports, medical equipment, and a wide range of consumer goods. So far it is less well known, but our activity in the market for intellectual technologies and information activity is promising.

We are by no means interested in instant profit here; rather in constantly increasing MAPO's viability and its creative and productive potential and preserving the spirit expressed in the hyperbolic formula of Academician Rostislav Belyakov, general designer of MiG's: Even if we are banned from making aircraft we will find a way round this ban and will construct them. Russia needs them.

### French Space Chief on Cooperation, Rivalry

MM2609104794 Moscow ROSSIYSKIYE VESTI  
in Russian 21 Sep 94 p 3

[Report by ITAR-TASS correspondent Igor Shchegolev under "Partnership" rubric incorporating interview in Paris with Jean-Daniel Levy, director general of the French National Space Research Center; date of interview not given: "They Can See Everything From Up There..."]

[FBIS Translated Text] Paris—Our aim is to maintain the high level of contacts with Russia in the sphere of space research despite competition, for example, with Germany and the United States. Jean-Daniel Levy, director general of the French National Space Research Center [CNES], stated this in an exclusive interview for ROSSIYSKIYE VESTI.

France, he went on to say, was a kind of pioneer, having established extremely privileged relations with the Soviet

Union in this sphere back in 1966. Times have changed now, however, and it has to measure swords with other countries which are also seeking to develop ties with the "space power"—Russia.

There is no other country in the world with which we have cooperated so consistently for so many years in very diverse spheres: science, manned flights, etc. We consider the Moscow-Paris axis very strong. We hope that our Russian partners adhere to the same opinion and, despite the present budgetary difficulties, will not disregard the contribution that they have already made to the development of bilateral ties, the CNES director general pointed out.

At the same time competition has also emerged in Franco-Russian relations. We understand, J.-D. Levy said, that the basic condition for keeping space research up among Russia's main priorities is access to world commercial markets, particularly the market for carrier rockets. We Europeans also have highly significant interests in this sphere. In particular, the European Ariane carrier rocket has been not only a technical but also a commercial achievement. This inevitably gives rise to a totally new element—rivalry with Russia.

From the political viewpoint we deem it necessary to prepare for your country's access to the market for spacecraft launching services. "Even taking into account the complex state of the Russian economy, however, it should be said that its sudden invasion by Russia with all its space might would be extremely destabilizing for the West as a whole," Levy pointed out. Therefore we have started negotiations on a treaty which will ensure its gradual emergence here. In addition, Russian and French specialists have embarked on consultations on possible cooperation in creating carrier rockets of the future.

This, in particular, was discussed at the routine 30th meeting of CNES and Russian Space Agency specialists in Toulouse in April of this year.

The list of topics discussed was very extensive, ranging from joint manned flights on the Mir orbiting station to research into the Sun and Mars. According to the CNES director general, however, two completely new topics were added to them this year. Above all, observations of the earth's surface, which France has been engaged in since 1976 and which it regards as one of the strategic areas of its space research.

The French SPOT satellite was developed specially for these purposes. Thanks to images obtained with the help of these satellites and which are in considerable demand on the world market, France has taken up good positions. Russia also engaged in analogous observations, but the "Resurs" and "Almaz" systems were not well known in the West because they were used, so it seems to me, mainly by the military. In 1991 we organized a seminar jointly with the Russian Space Agency and carried out a number of joint tasks. In Toulouse we decided to implement two experimental projects based on parallel use of the SPOT and "Resurs" systems to observe forests, the state of the environment, the consequences of exploiting oil resources in Siberia....

Let us add for our part that after the conclusion of the 30th Russian-French meeting the press reported that the United States was acquiring the French technology used in the SPOT system. According to a newspaper, the U.S. military, which possesses the world's most powerful spy satellites, had discovered that SPOT fulfills a task which it sees as extremely necessary: the super-rapid acquisition of a large-scale image of "sensitive zones." The resolving capacity of the U.S. equipment, which was created to observe ballistic missile silos in the USSR, is greater. But the "picture" takes too long to reach the earth.

The second project is also connected with studying the earth's environment and radioactive emission. It was begun in January, when a Russian Meteor satellite was launched into orbit with French Scarab equipment on board and, so specialists acknowledge, will make a substantial contribution to implementing the world program of climate research.

"Another sign of the times," Levy continued, "is that, starting in 1990, bilateral ties between Russia and France in the sphere of space exploration have been moving from a purely scientific dimension to an industrial one. It was then that France put forward the initiative to hold in Moscow a meeting of representatives of the two countries' space industries, which would enable them to establish contacts with each other. The meeting led to good results, and many of its participants have already concluded contracts with each other. During the 30th meeting the desire to further develop relations between French and Russian space industry enterprises was confirmed," Levy said, making it clear that most frequently specific projects are not publicized because of that same old competition that exists in the world in this sphere.

As you see, the CNES director general pointed out, our relationship with Russia is characterized by both cooperation and rivalry. "But to a greater degree we are partners," he concluded.

## FOREIGN MILITARY AFFAIRS

### West Adjusting ASW to New Conditions

95UM0054A Moscow *MORSKOY SBORNIK*  
in Russian No 9, Sep 1994 pp 67-72

[Article by A. Demchenko and N. Rezyapov: "Antisubmarine Warfare: What's New?"]

[FBIS Translated Text] The combatting of enemy submarines, which in the U.S. and NATO is called antisubmarine warfare, is one of the determining directions of combat actions at sea. Their successful conduct is acknowledged by the U.S. Navy and NATO as one of the necessary conditions for attainment of supremacy overall in oceanic and sea theaters, as well as in individual zones and areas.

Plans are to accomplish a larger share of basic tasks at sea in the course of antisubmarine warfare: prevention of missile strikes from submarine missile platforms against ground targets; support of antisubmarine defense of areas and zones of combat patrols of friendly ballistic missile

submarines; protection of ocean and sea lines of communication, formations of combat ships and convoys, as well as participation in the defense of territories, especially island areas.

Before, the plan was to wage antisubmarine warfare using all the basic service components, as well as units and formations of other services, especially strategic and tactical aviation. In the process of organization of this type of combat actions, provision was made for: timely creation of groupings of mixed forces in areas directly abutting the territory of the USSR and other socialist countries; concentration of basic efforts of the Navy in forward zones, especially at ASW lines in straits and narrows; conduct of antisubmarine warfare through the entire depth of ocean and sea theaters with participation of zonal commands of the joint naval forces of NATO, operational fleets, operational and tactical formations of the U.S. Navy, national navies of the NATO countries and other U.S. allies; achievement of operational or tactical supremacy at sea to protect individual operational axes, route communications centers, and formations of combat ships and convoys.

In geographic representation, the priorities of action of forces in individual zones were defined as follows. The "red" zone included areas of combat patrols of Soviet submarines equipped with submarine-launched ballistic missiles (SLBM). The "orange" zone covered the forward areas of theaters. And finally, there were plans to wage antisubmarine warfare in the "yellow" zone, in the interests of protecting sea lines of communication in the North Atlantic and northern part of the Pacific Ocean.

The radical changes in the military-political and strategic situation in the world, the chief feature of which is, on the one hand, the reduction to a minimum of the probability of a general nuclear or conventional war in which NATO forces and Russia would participate as adversaries, and on the other hand the outbreak of new focuses of tension of a local scale, have predetermined the natural shifting of priorities of the use of the Armed Forces of the U.S., NATO and their allies toward settlement of regional crises and local conflicts. This in turn has entailed changes in approaches to principles of organization of antisubmarine warfare under new conditions, leading to adjustment of its missions. Although the commands of U.S. and NATO navies continue to allow for a continuing "submarine threat" from Russia, the basic accent is put on the problems of antisubmarine actions against Third World countries. Basically, in the opinion of western experts, orientation toward combatting quiet, non-nuclear submarines, especially in shallow areas, demands significant changes in ASW forces. First of all, the systems of search, detection and classification of submarine targets must undergo improvement.

In the opinion of the command of the U.S. and NATO navies, the conduct of ASW operations remains the most difficult mission of future conflicts, demanding enormous resources and time. It is thought that the amount of time needed to conduct ASW operations is growing sharply.

This conclusion confirms in particular the lessons of the Falklands conflict of 1982, during which the Argentine submarine "San Luis" attacked British ships three times.

The first attack was made from a distance of around 9 km, but the torpedo passed by the target. The subsequent search actions of three frigates of the Royal Navy with helicopters on board for 20 hours brought no result. The second torpedo attack from a distance of around 4.5 km ended with a hit on target, but the torpedo fuze was not triggered. Even after this attack, the submarine managed to evade the English ASW forces. In the course of a third attack, a torpedo was launched against an unidentified submarine. Thus the "San Luis" was able to assume a good attack position three times. The lack of results can be explained only by the inadequate proficiency of the crew and the low technical readiness of the weapons. It is clear that a successful attack and damage to one of the British carriers in the early stage of the conflict could have radically influenced its outcome.

As naval experts believe, as a means of waging war at sea, submarines remain at present the only force capable of challenging U.S. supremacy at sea, or of limiting the West's freedom of navigation. By the criterion of cost effectiveness, they constitute the most appropriate means for countries which want to force others to stay a little further away from their shores. Besides this, the use of submarines for raiding actions is possible.

The foreign press pays special attention to the tendency toward an increase in the number of submarines in Third World countries (there are a total of 250 submarines now, excluding the NATO and CIS countries). Continuous improvement in their tactical characteristics is noted: noise is reduced, autonomy and depth of submersion increased, effectiveness of onboard weapons and armament growing. Besides this, the world market is offering increasingly up-to-date submarines, whose design utilize new technologies, for example closed-cycle non-nuclear power plants.

In 1991 the Deputy U.S. Defense Secretary Henry Sokolski made the following prediction: "By 2005, the navies of countries such as Algeria, Argentina, Brazil, Egypt, India, Indonesia, Iran, Israel, Pakistan, and the Republic of South Africa will have twice as many modern non-nuclear submarines as they do today. . . All this puts very high demands on the ASW forces and assets of the U.S. Navy and its allies and may demand changes in today's ASW methods. This applies especially to shallow areas, such as the Persian Gulf."

The new approach to ASW has also affected the "engagement zones." Geographically, "blue waters," "green waters," and "brown waters" with specific features have been distinguished. The "blue waters" include ocean areas where the nature of actions of forces have practically not changed, "green waters" cover the water area of the continental shelf, and the "brown waters" include areas with depths in which ASW actions are ruled out and [actions of] diesel submarines are hampered. The countries of South America, Asia and the Near East are in the boundaries of the "green water," and their diesel submarines may pose a great potential threat to the navies of Western countries.

In this regard, proposals on the use of ASW in shallow areas are of some interest to experts. With their help, plans



are to effect a blockade of basing points of the navies of potential adversaries, preventing actions by diesel submarines in the coastal zone, to conduct covert mining operations, to conduct reconnaissance and to deliver strikes against ground targets with long-range cruise missiles. If necessary ASW aviation may be called on to land special-operations subunits.

Radar, hydroacoustic and infrared stations remain the traditional effective means of detection of diesel submarines in the "green waters," while the use of long towed antennas will be limited for a number of reasons. In this regard, by all appearances bistatic hydroacoustic stations and jointly utilized active and passive search means (for example, it is expected that passive means will be carried on ASW aviation, while active ones will be dropped from a plane or helicopter), as well as the ASW planes and helicopters themselves are promising means of detection of submarines beyond the range of their weapons.

The extremely unfavorable hydrological conditions in shallow areas give grounds for the assertion that diesel submarines will be detected at very short distances, which gives the advantage to the forces conducting the search for them, and demands that the submarines have weapons with minimal reaction time on board. In addition, ASW forces in "green waters" will have strict requirements in the air defense area, due to the proximity of actions to the adversary's coast.

As foreign experts note, the specifics of the "brown waters" have more in common with anti-mine actions than with ASW actions in the "blue" and "green waters," so the effective means of detection here may include submarine television cameras, laser radars, and magnetic detectors, while the means of submarine destruction will include mines, depth charges, and net barriers.

Western experts count among the shallow "threatened areas" the Persian Gulf, the Red Sea, the Arctic seas, the Gulf of Thailand, and the South China Sea, as well as areas abutting the coast of the U.S., where submarines of potential adversaries may operate.

Stress is put on the multinational nature of the mixed forces which will conduct ASW actions in the future, which will complicate questions of command, control and inter-action of the ASW forces.

If a limited war proliferates into a general war, the increase in the quantitative strength of the ASW forces in assigned areas will be effected basically through deployment of ASW maneuver forces, and partially through positional-maneuver and rapid-deployment fixed systems developed for use primarily in shallow areas.

Both the local security forces of ship and vessel formations and the ASW forces of the corresponding zones and areas will help perform the ASW tasks. The basic principle of structure of the antisubmarine defense, as before, will be concentration of efforts in the threat axis, and creation of echeloned close-in, medium, and long-range defensive zones at the most probable lines of use of enemy submarines. A tendency toward increasing the sizes of the submarine defense zones of ship formations is also noted.

Recently there has also been a reassessment of the role of individual components of tactical ASW forces and assets. In addition to submarines and planes of base patrol aviation, ship-borne helicopters, which are indispensable in the search for and attack of detected submarines and can be used for coordination of efforts of other ASW forces (fig. 1), are coming to the fore in shallow areas. There are two concepts for the use of helicopters in ASW. The first is the American concept of the LAMPS system, which is based on the fact that the helicopter must be the "link" that extends the range and effectiveness of the means of detection and engagement of submarines. In accordance with the second concept (NATO), the helicopter is viewed as an independent means of detection and destruction of submarines (naturally in coordination with the surface ship platform). The EH-101 and NH-90 helicopters have been developed in this area. At present the process of "merging" of these two concepts is in progress, and in practice this will find expression in equipping of the helicopters with airborne data processing equipment.

In resolving the task of local security of ship and vessel formations, ASW submarines are changing over from traditional methods to the principles of deeper coordination directly with the ship or antisubmarine plane of the formation. An integrated triad (submarine - surface ship - plane) is becoming more widespread as a method of raising the operating effectiveness of ASW forces.

A number of important tactical requirements are now imposed on antisubmarine actions: organization of close coordination, creation of the necessary conditions for effective use of the basic types of weapons and technical equipment, reliable support of submarine defense of protected forces, and assured monitoring of designated lines, areas, and sectors. At the same time, each antisubmarine action must provide for the possibility of redistribution of efforts of individual tactical units in the course of search and destruction of submarines, and their use of different modes of attack corresponding to the new tactical situation.

The last decades are characterized by swifter development of the means of detection and destruction of submarines, albeit with retention of their evolutionary nature. At present, according to the "Janes" reference, around 100 nuclear and more than 110 diesel submarines, up to 350 destroyers and frigates, around 420 carrier-based antisubmarine planes and planes of base patrol aviation, and 670 antisubmarine helicopters of the navies of NATO countries can be called on to accomplish ASW missions.

The U.S. is traditionally the leader in the field of construction of nuclear-powered attack submarines, which are now classed as the most effective element of maneuver forces. Although nuclear submarines of the new "Sea Wolf" class will be built, most likely two of them (fig. 2), design of new-generation nuclear submarines of the "Centurion" class continues. These will be largely intended for actions in coastal (shallow) areas.

Great Britain is considering development of the next series of improved nuclear submarines of the "Trafalgar" class (project SSN-19 1/2) instead of the earlier planned SSN-20 class nuclear submarine. In France construction of

"Rubis" class SSNs (6 units) is under way. English and French specialists are working on a joint project for a prospective nuclear-powered attack submarine. In the U.S., Canada and France small nuclear reactors are being built, with a power from a hundred to several hundred kW for low-displacement submarines, including for modern diesel submarines. They can be used, for example, for recharging storage batteries while under water. Such submarines are provisionally designated as SSn, while normal attack nuclear submarines are designated as SSN. As noted in the foreign press, nuclear submarines may be developed in Brazil by 2010.

The effectiveness of actions of ASW forces in coastal areas will increase with the appearance of non-nuclear submarines in the navies of NATO countries, with power plants of the combination type, or completely independent from atmospheric air (in Great Britain, project 2495, in Germany project 212, in Italy project S-90, in Sweden PL A-19, in the Netherlands the "Moray" class submarine, as well as the Franco-Spanish project for the "Scorpion" class submarine). It is expected that submarines of such classes will be comparable with nuclear submarines, and greatly surpass modern diesel submarines in terms of their operational-tactical performance, particularly autonomy, covertness, continuous submersion time, and degree of automation.

New types of power plants based on diesels and gas turbine closed-cycle plants, fuel elements and Sterling engines are being developed for prospective non-nuclear submarines. Thus the Italian company "Maritalia" has produced the experimental submarine 3GST9 with a closed-cycle diesel. In it oxygen is stored in a gaseous state in the "toroidal" high-strength hull under a pressure of 350 atmospheres. The depth of submersion of the boat is 450 m, but it is thought that it could reach 630 m without much trouble. In tests its hull withstood a maximal depth of more than 1000 m. The high strength comes for the specific design features of the hull, into whose "torus" exhaust gases are pumped as oxygen is expended. The range of underwater travel of the submarine is 100 n.m. at a speed of 8 knots, and 200 n.m. at a speed of 6 knots.

Great Britain is developing a closed-cycle diesel of the "Argo" system. Here ordinary oxygen is mixed with argon to obtain an "artificial" (without nitrogen) air which has the same thermodynamic properties as ordinary air. For this reason, the diesel plant can be switched to ordinary air without special problems. Plans are to install a diesel closed-cycle power plant based on the "Argo" system on one of the submarines of the Dutch navy. Work is under way at the shipyards in Rotterdam. The power plant, which has been dubbed "Spectre," has a 60-ton reserve of liquid oxygen in two tanks. It can be mounted on "Moray" class boats with a displacement of 1800 t. Power plants with a power of 600 kW allow the submarine to travel underwater at a speed of 9 knots for 120 hours (500 hours at 2 knots).

The Stirling engine is less noisy than a conventional engine (fig. 3). According to specialists, its noise level is 15-25 dB lower at high rpm and 8-10 dB lower at low rpm. At present, two 4-cylinder Stirling engines with a power of up to 75 kW (V4-275) have been mounted on the Swedish submarine "Nekken." Modules of a new type (V4-275R) are intended for A-19 class submarines.

The concept of a closed-type steam turbine, the operating principle of which consists in obtaining energy through combustion of ethanol in oxygen, is under development. Combustion products are returned to the tanks.

Germany is the leader in development of power plants based on fuel elements. According to statements of German specialists, in the future such engines will allow submersion of submarines for one month or more. Further research involves a search for new hydrogen compounds, since the storage of pure hydrogen on board is very dangerous.

The British "Vickers" company is developing a power plant based on fuel elements in which methanol is used to produce the hydrogen. If it is successful, there are plans are to mount it on an "Apholder" class submarine in 1995.

Studies by Japanese scientists to develop a submarine with magnetohydrodynamic propulsion, with a superconducting magnet having a field flux density of 4 teslas, making it possible to develop a speed of 8 knots with an engine efficiency of 4 percent, are worthy of attention. A magnetic field with a flux density of 8 teslas in the future will make it possible to increase the efficiency to 30 percent and raise the speed to 16 knots. Problems include the give-away magnetic field and the formation of bubbles as a result of electrolysis, which can easily be detected by active sonar.

Autonomous multipurpose submersibles (PAs or robots) and midget submarines (SMPL) can vitally raise the combat capabilities of prospective submarines and surface vessels. They can be called on to conduct reconnaissance or may be used as a means of delivery of naval weapons and simulation of submarines in order to divert enemy ASW forces, or may be used for creation of lanes in mine barriers and for destruction of mines. In addition, they are very hard to detect because of their small dimensions and good maneuverability.

Today's SMPLs have a good collection of detection and destruction means. For instance the French "Sagittaire" SMPL (displacement 231 t, surface speed 12 knots, submerged speed 17 knots, range of submerged travel 22 n.m., surface two thousand n.m.) carries an active-passive sonar, a detection device and an analyzer of hydroacoustic and radar radiation, a video camera, six torpedo tubes for small torpedoes (instead of the torpedo weapons, a subunit consisting of eight frogmen can be taken aboard).

SMPLs of various types are in South Korea ("Tolgorae" class, displacement 175 t), Yugoslavia (M110-D class, displacement 88 t), Germany (KD class, displacement 52 t), Italy (various classes, displacements from 40 to 110 t, for example the SX-404).

Research is under way to develop unmanned autonomous submersibles which will differ radically from remote-controlled submersibles used for example to combat mines (classes PAP 104 and "Penguin B-3").

Foreign specialists believe that ultimately an autonomous submersible with "intelligence" will be developed and deployed from submarines. It will be capable of operating both independently and in coordination with the platform, and are also armed with a cruise missile and with a sonar with a long towed antenna.



According to statements, the introduction of autonomous submersibles may in the end overturn the entire ASW system and change the conduct of antisubmarine warfare, not to mention the operating tactics of ASW forces and submarines.

Surfaces forces are one of the important means of combating submarines. These include light aircraft carriers, which are part of the navies of Great Britain, Italy and Spain, and combat ships of the "destroyer-frigate" class. They are used as aircraft-carrying search-strike groups, and operate at antisubmarine barriers and on sea lines of communications, and conduct antisubmarine defense of amphibious assault detachments, convoys and other formations of ships and vessels. The chief emphasis in improving the surface fleet of the U.S. Navy today is put on construction of guided missile destroyers of the "Arleigh Burke" class, which are oriented toward accomplishment of a broad group of tasks, including antisubmarine defense of ship groupings. In addition, scientific studies are under way to create a "unified combat ship (BFCC—Battle Force Capable Combatants) which in the future might replace existing cruisers, destroyers and frigates. One of the developed projects of the guided missile destroyer of the new generation (designated DDG-LX) was made in accordance with SWATH technology (catamaran type), which makes it possible to significantly reduce the level of the acoustic field of the ship and raise its seagoing qualities. The technical difficulties associated with development of the design of the electrical transmission (the chief power plant operates on an electric motor which turns the propeller), it is thought can be overcome by using the effect of high-temperature superconductivity. In the event of success in this sphere, the electrical transmission will also be used in submarines.

In the navies of NATO European countries, further construction of destroyers is evidently planned only in France and Italy.

In the British Royal Navy, whose fleet perhaps has the greatest ASW capabilities of the NATO countries, frigates have traditionally held one of the chief places. Thus guided missile frigates of project 23 (Norfolk class), in the evaluations of western experts, are the best of all existing modern ships of this class. Plans are to construct frigates of a new type based on the "Horizon" project developed jointly with France and Italy.

France is building guided-missile frigates of the "Lafayette" type, which carry a low-noise diesel-electric power plant. In Germany, priority attention is also being paid to questions of antisubmarine defense in the development of surface ships.

The increase in ASW capabilities of planes and helicopters of naval aviation are of great importance in NATO countries. For instance, the U.S. is discussing the question of the replacement of the carrier-based S-3 antisubmarine "Viking" plane by the V-22 "Osprey," which would also combine the functions of the EA-6B "Prowler" and E-2C "Hawkeye" planes. In the ASW context, the "Osprey," which combines the properties of plane and helicopter, can

also use a more effective means, dipping sonars, in addition to sonobuoys. It can be based not only carriers, but also on ships of the "cruiser-destroyer" class, as well as on landing ships. The "Osprey" surpasses helicopters in speed and duration of patrolling.

In France after the carrier-based "Alise" antisubmarine aircraft are removed from the armament, their tasks probably will be assigned to antisubmarine helicopters.

During modernization of the SH-60 (U.S.) helicopters, they will receive a low-frequency, dipping sonar and the means to engage surface ships and submarines (antisubmarine missiles and the corresponding electronic weaponry). EH-101 and NH-90 helicopters, by all appearances, will be in the naval armament of practically all NATO countries. These helicopters greatly surpass their predecessors in tactical performance. For example the patrolling time of the NH-90 helicopter is no less than 4 hours, and its radius of action is 60-100 n.m. Plans are to equip it with a low-frequency dipping sonar having a range of target detection of up to 10 km with a capability of processing data on several targets simultaneously. It can carry 50 sonobuoys and has electronic equipment allowing receipt and processing of data from 16 buoys. The magnetic detector will be interfaced with a computer that will have in its memory a "library" of characteristics of standard target signals. The high flying speed and long patrol time will raise its capacity of detecting submarines at long range from the platform (especially in the conduct of a second search from the target designation data of a ship equipped with a long towed antenna). Overall in carrier-based aviation, helicopters are starting to play an ever-larger role as a means of effective support of ASW defense of ship groupings in the close-in zone.

Planes of base patrol aviation continue to be important. Although it has been reported that the U.S. plans a program for development of a future patrol aircraft, the P-7 (U.S.), funds have been allocated for modernization of the P-3C "Orion." Plans are to improve the "Atlantic" planes in the armament of Western Europe (France, Germany, Italy), the "Orion" (Netherlands), the "Nimrod" (Great Britain, in the Air Force), or to replace them with new types.

At the same time, in NATO countries great attention is paid to surface-effect vehicles as a platform for antisubmarine means possessing the speed (search productivity) of a plane. The possibility of equipping them with helicopters, similarly to the LAMPS system, is being studied. The surface-effect vehicle, capable of flying both at low and high altitude, without the use of the surface effect, can also use sonobuoys. Of course, the possibility of using sonar systems with a towed antenna is called into doubt.

Analyzing the basic provisions of the "regional defense strategy" of the U.S., which constitute only a scaled-down variant of the naval "forward-lines strategy" and the "new strategic concept" of NATO, one can conclude that if a military conflict breaks out, either regional or on a broader scale, the NATO ASW forces will be sufficiently equipped and prepared for actions against conventional and nuclear submarines of the enemy, and will be able to effectively conduct a whole group of ASW measures.



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